



JOURNAL OF THE TRANSACTIONS
OF
THE VICTORIA INSTITUTE

VOL. LXIX

SIR (JOHN) AMBROSE FLEMING, KT., M.A., D.Sc., F.R.S.

A selection from among many Scientific Attainments.

Emeritus Professor of Electrical Engineering of the University of London.

Honorary Member of the Institution of Electrical Engineers, London.

Honorary Member of the Royal Engineers' Institute, Chatham.

Honorary Fellow of the Society of Engineers, London.

Honorary Member of the Society of Engineers, Liège, Belgium.

Honorary Doctor of Engineering, University of Liverpool.

Honorary Fellow of St. John's College, Cambridge.

Honorary Fellow of the Institute of Physics, London.

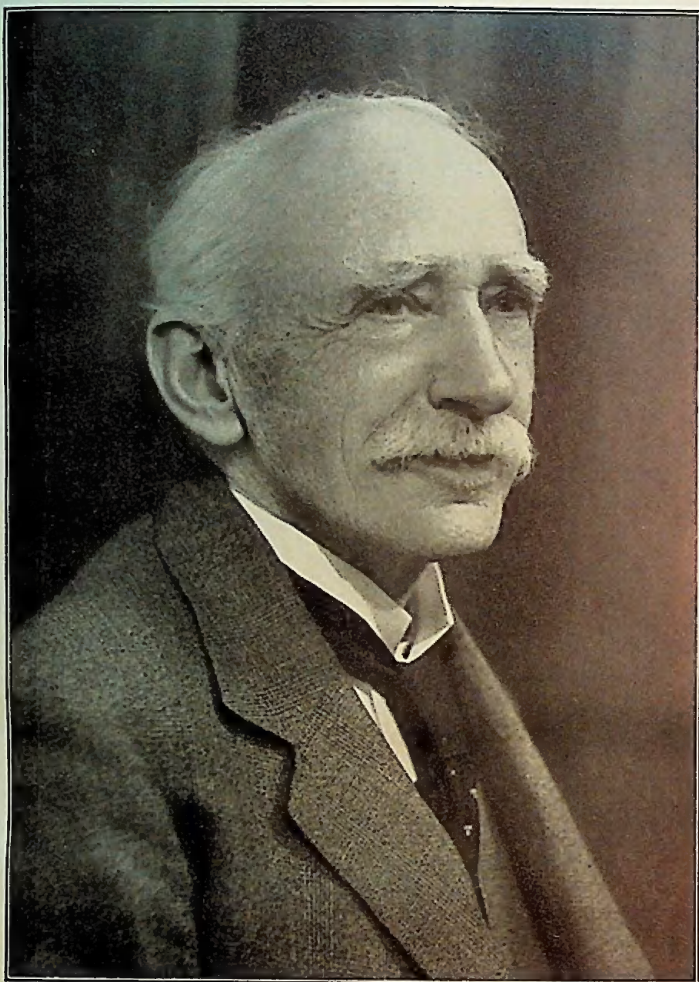
Corresponding Member of the Royal Philosophical Society of Glasgow.

Honorary Member of the Lancaster Astronomical and Scientific Association.

Has been for more than fifty years closely and practically connected with the introduction into Great Britain, and working, of the epoch-making inventions of the Telephone, Incandescent Electric Lighting and Wireless Telegraphy. In 1885 he was appointed the first Professor of Electrical Engineering in University College, London, a position he held for forty-two years. For more than thirty years he acted as Adviser to Marconi's Wireless Telegraph Company, and assisted in the design of the first long-distance wireless station at Poldhu in Cornwall. His most important invention in connection with wireless telegraphy was the first form of Thermionic Valve which has been the precursor of all subsequent valves of 3, 4 and 5 electrode form. For this invention, the Royal Society of Arts, London, awarded him in 1921 their highest distinction—the **Albert Medal**. He received the **Faraday Medal** of the Institution of Electrical Engineers in 1928, the **Duddell Medal** of the Physical Society of London in 1931 and the **Hughes Medal** of the Royal Society of London in 1910. He has carried out a large amount of original research in Electrical Physics and has been a Fellow of the Royal Society of London for forty-five years. He has published some twenty books on various subjects, some of which have had a world-wide circulation, and about one hundred papers on his scientific researches.

He has been a Vice-President of the Institution of Electrical Engineers and is President of the Television Society.

He received in 1933 two **Medals of Honour** from the Institute of Radio Engineers of New York, U.S.A., for his wireless work, and was voted in 1935 the award of the **Franklin Medal** by The Franklin Institute of America, the highest award for the Physical Sciences in the United States. When the Institution of Electrical Engineers of London celebrated its Jubilee in 1922, he was selected to give the Oration on "Faraday and the Foundations of Electrical Engineering." In May, 1923, he gave the fourteenth Kelvin Lecture before the same Institution on "Problems in Telephony Solved and Unsolved," and in 1935 he was awarded the great honour of the **Kelvin Medal** in recognition of the eminent services he has rendered to engineering science by his work and investigations in those branches of engineering with which the late Lord Kelvin was especially identified.



Sir (John) Ambrose Fleming.
M.A., D.Sc., F.R.S.

President,

The Victoria Institute

or

Philosophical Society of Great Britain.

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1937

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ST. MARTIN'S LANE.

PREFACE

THE cordial thanks of the Institute are due to the authors of the ten papers, comprised in this volume. A great deal of time and trouble is necessarily involved in their preparation. That is shown from the high standard both of scholarship and exposition which characterises their contributions. Special mention ought to be made of the fact that the papers are so readable. They can be perused with pleasure, as well as with abounding profit to mind and heart, by any person of good education, although they deal with matters which are, in their very nature, abstruse and complicated. That feature is specially characteristic of the contributions from the pen of our honoured President. Since he took office, Sir Ambrose Fleming has enriched successive volumes with discussions which combine in the most effective fashion vast stores of erudition and the gift of graceful and lucid explanation. One of the aims of the Institute is to arrange for such lectures by those who have specialised in some branch of research or investigation that the members may be kept in touch with the latest advances in the kingdom of knowledge.

It must not, however, be supposed that the views expressed in these ten lectures, or even in the discussion which followed their delivery, necessarily represent the convictions and conclusions entertained by the Institute as a whole. Each contributor is given freedom within reasonable limits to embody in his paper the theories which seem to him to do the fullest justice to the facts in the field with which he deals. In many cases, the trend of the discussion will show at once that the contentions of the lecturer have not met with the unqualified approval of the members of the Institute. The latter believe profoundly in the need for free discussion as an indispensable aid for the elucidation of truth. The Institute is glad to provide a forum for such an exchange of ideas. If the views of

the lecturer do not accord with those held by the members, the paper is none the less appreciated, and none the less welcome. But it must be clearly understood that the inclusion of a paper in this volume does not imply that the imprimatur of the Institute is set upon all that it may contain. For those members who regularly attend its meetings, such observations are obviously superfluous. These volumes of Transactions, however, travel to the ends of the earth, and find a place on the shelves of numerous learned libraries. In these circumstances, it is perhaps desirable to state definitely from time to time that the standpoint of the Institute is thoroughly evangelical and thoroughly conservative.

That seems as if it were an old-fashioned body, lagging far behind the march of modern thought. The Institute is not ashamed of its position, maintained from its foundation in the year 1865, only six years later than the publication of Darwin's *Origin of Species*, whose teaching it has never ceased to criticise and oppose. In every department of human life, old fashions have got a way of becoming new fashions. It is manifest that, both in theology, philosophy, and science, the trend of thought is towards a position approximating much more closely to that of the Institute than any which has been occupied and defended by the learned world since the beginning of the century. The Institute, therefore, feels that it is rendering some public service by continuing to testify to the validity of the historic doctrines regarding the nature of God and His Universe.

H. S. CURR,

Editor of Transactions.

CONTENTS

	PAGE
PREFACE	v
REPORT OF COUNCIL FOR THE YEAR 1936	1
THE ANNUAL BUSINESS MEETING HELD ON MONDAY, MAY 3RD, 1937	9
ON SOME METHODS OF DETERMINING THE AGE OF THE EARTH AND THEIR ASSUMPTIONS. BY SIR AMBROSE FLEMING, F.R.S. (<i>President</i>)	15
<i>Discussion.</i> —Remarks by the Chairman, Alan Stuart, Esq., M.Sc., F.G.S., Mr. Douglas Dewar, B.A., F.Z.S., the Rev. Dr. D. E. Hart-Davies, Prof. A. S. Eve, C.B.E., D.Sc., F.R.S., Rev. H. A. Edwards, Dr. J. Barcroft Anderson	30
<i>Communications from</i> Lt.-Col. I. M. Davies, M.A., F.G.S., Prof. J. Satterly, D.Sc., F.R.S.C.	35
THE PERSON OF CHRIST. DOCTRINE OF THE TWO NATURES. BY HENRY R. KINDERSLEY, Esq., B.A.	41
<i>Discussion.</i> —Remarks by the Chairman, the Rev. Charles W. Cooper, F.G.S., Mr. Percy O. Ruoff, Mr. George Brewer, Mr. R. Duncan	53
<i>Communications from</i> Major R. B. Withers, D.S.O., The Ven. Archdeacon W. S. Moule, M.A.	58
CHANGE AND THE ETERNAL. BY G. H. LANGLEY, Esq., I.E.S. (<i>retired</i>)	67
<i>Discussion.</i> —Remarks by the Chairman, Mr. W. N. Delevingne, the Rev. A. W. Payne, Mr. L. Everard Jose	81
<i>Communications from</i> Mr. W. E. Leslie, Rev. Principal H. S. Curr, M.A., B.D.	86
SCIENCE AND THE INTERPRETATION OF SCRIPTURE. BY ALAN STUART, Esq., M.Sc., F.G.S.	90
<i>Discussion.</i> —Remarks by the Chairman, Mr. W. E. Leslie, Mr. Douglas Dewar, Lt.-Col. Skinner, Mr. L. E. Jose, Mr. George Brewer	108
<i>Communications from</i> the President, Sir Ambrose Fleming, F.R.S., Lt.-Col. L. M. Davies, Dr. E. Cecil Curwen, Dr. J. Barcroft Anderson, Lt.-Col. P. W. O'Gorman, C.M.G., M.D., M.R.C.P., Dr. W. Bell Dawson, F.R.S.C.	114

	PAGE
THE CROWN IN ENGLAND. BY MAJOR HUBERT C. CORLETTE, O.B.E., F.R.I.B.A.	133
<i>Discussion.</i> —Remarks by the Chairman, Brig-General W. Baker Brown, C.B., the Rev. C. W. Cooper, Rev. A. W. Payne, Mr. George Brewer	169
<i>Communication from</i> Lt.-Colonel L. M. Davies.	174
SOME RECENT VIEWS OF THE PHYSICAL UNIVERSE AND OF THEIR REACTION ON PRESENT-DAY THOUGHT. BY THE REV. T. E. R. PHILLIPS, M.A., F.R.A.S.	183
<i>Discussion.</i> —Remarks by the Chairman, Mrs. M. A. Evershed, F.R.A.S., Mr. P. O. Ruoff, Lt.-Col. F. A. Molony, Lt.-Col. T. C. Skinner, Mrs. Walter Maunder, F.R.A.S.	200
<i>Communications from</i> Lt.-Col. L. M. Davies, Mr. Avary H. Forbes, Dr. W. Bell Dawson, F.R.S.C.	204
THE DEAD SEA AND THE LOST CITIES OF THE PLAIN. BY E. W. G. MASTERMAN, M.D., F.R.C.S., F.R.G.S.	212
<i>Discussion.</i> —Remarks by the Chairman, Sir Ronald Storrs, K.C.M.G., C.B.E., Mr. R. Duncan, Prof. A. Saaristo, the Rev. H. Temple Wills, M.A., B.Sc.	223
THE BOOK OF JONAH IN THE LIGHT OF ASSYRIAN ARCHÆOLOGY. BY THE REV. D. E. HART-DAVIES, M.A., D.D.	230
<i>Discussion.</i> —Remarks by the Chairman, Sir Charles Marston, Rev. A. W. Payne, Lt.-Col. F. A. Molony, Mr. Sidney Collett, Mr. G. Brewer, Dr. Norman S. Denham	245
THE FOURTH GOSPEL "IN SITU." BY THE REV. DAVID M. MCINTYRE, D.D.	250
<i>Discussion.</i> —Remarks by the Chairman, the Rev. W. J. Downes, M.A., B.D., Dr. J. Barcroft Anderson, Mr. Sidney Collett, Mr. William C. Edwards, Mr. George Brewer	263
<i>Communication.</i> —Mr. W. E. Leslie	269
MIRACLE: A NECESSARY ADJUNCT OF REVELATION. BY W. H. BOULTON, ESQ.	273
<i>Discussion.</i> —Remarks by the Chairman, Mr. R. Duncan, M.B.E., I.S.O., Dr. J. Barcroft Anderson, Mr. Sidney Collett, Mr. R. G. Lundy, I.S.O., Major R. B. Withers, D.S.O.	285
LIST OF MEMBERS, ASSOCIATES, ETC.	293
CONTENTS OF THE LAST TWENTY-SIX VOLUMES	314
OBJECTS, CONSTITUTION AND BY-LAWS	325

* * The object of the Institute being to investigate, it must not be held to endorse the various views expressed either in the papers or in the discussions.

VICTORIA INSTITUTE

REPORT OF THE COUNCIL FOR THE YEAR 1936.

TO BE READ AT THE

ANNUAL GENERAL MEETING, MAY 3RD, 1937.

1. Progress of the Institute.

The 69th Annual Report, marking the 71st year of operation. Save for the continual ebb and flow of membership—a common feature of recent years—and the difficulty it throws in the way of maintaining steady income, the Council feel they may look thankfully on the year's results as set forth in the 69th Report.

Not only have the agreed number of papers (ten) been read and published with the discussions, but the Council have good hope of the support of Members and Associates in their view that, taken all round, the transactions now published are, if anything, above, rather than below average in quality and value.

For this the Society is deeply in debt to the generous authors who contributed so freely of their time and talents, while no less grateful to the critics, courteous and candid, who have sought to winnow out truth in the threshing floor of free debate, the desire throughout being that, in accord with the motto of the Institute, all may redound “to the greater Glory of God.”

By way of footnote it may here be mentioned that a link of sympathy has been established this past year with The Palestine Exploration Fund and its allied society, The British School of Archæology in Jerusalem, the objects of which are generally of real interest to our Members and Associates.

2. Meetings.

Ten ordinary meetings were held during the 1936 Session. The papers published were:—

“The Times of the Gentiles,” by Rev. F. W. PITT.

Commander R. G. Studd, D.S.O., R.N. (ret.), in the Chair.

“The Noachian Flood,” by LIEUTENANT-COLONEL F. A. MOLONY, O.B.E.

Alan Stuart, Esq., M.Sc., F.G.S., in the Chair.

"The Problem of the Great Pyramid," by LIEUTENANT-COLONEL A. KENNEY-HERBERT.

The Rev. Charles W. Cooper, F.G.S., in the Chair.

"The Evidence in the Pentateuch of the Sojourn in Egypt," by A. COWPER FIELD, Esq.

Dr. A. S. Yahuda, in the Chair.

"The Exodus: an Examination of the Route followed by the Israelites on their Departure from Egypt," by COLONEL C. C. ROBERTSON, D.S.O.

Brig.-General F. D. Frost, C.B.E., D.S.O., in the Chair.

"The Present Position of the Jews in relation to World Events," by DR. M. GASTER.

Samuel H. Wilkinson, Esq., F.R.G.S., in the Chair.

"The Present Position with Regard to the Origin of Species," by R. E. D. CLARK, Esq., M.A., Ph.D.

Douglas Dewar, Esq., B.A., F.Z.S., in the Chair.

"The Races and Peoples of the Early Hebrew World: A Study in Ethnology," by G. R. GAIR, Esq., F.R.A.I., F.S.A.Scot., M.S.A.S.

Lt.-Colonel Arthur Kenney-Herbert, in the Chair.

"The Supposed Evolutionary Origin of the Soul" (being the Dr. Alfred T. Schofield Memorial Paper), by REV. H. C. MORTON, B.A., Ph.D.

Dr. J. Burnett Rae, in the Chair.

"Some Philosophical Conceptions of Modern Physical Science and their Relation to Religious Thought," by SIR AMBROSE FLEMING, M.A., D.Sc., F.R.S. (President).

Sir Robert Armstrong-Jones, C.B.E., M.D., D.Sc., in the Chair.

3. Council and Officers.

The following is a list of the Council and Officers for the year 1936 :—

President.

Sir Ambrose Fleming, M.A., D.Sc., F.R.S.

Vice-President.

Right Rev. Bishop J. E. C. Welldon, M.A., D.D.

Trustees.

Alfred William Oke, Esq., B.A., LL.M., F.G.S.
Lieut.-Colonel Hope Biddulph, D.S.O., late R.F.A.
William C. Edwards, Esq.

Council.

(In Order of Original Election.)

Alfred William Oke, Esq., B.A., LL.M., F.G.S.	Lieut.-Col. T. C. Skinner, late R.E., F.R.Met.S.
Lieut.-Col. F. A. Molony, O.B.E., late R.E.	Lieut.-Col. Arthur Kenney-Herbert.
Lieut.-Col. Hope Biddulph, D.S.O., late R.F.A.	W. N. Delevingne, Esq.
Avery H. Forbes, Esq., M.A.	Rev. Principal H. S. Curr, M.A., B.D., B.Litt.
Prof. Arthur Rendle Short, M.D., B.S., B.Sc., F.R.C.S.	Douglas Dewar, Esq., B.A., F.Z.S.
The Rev. Harold C. Morton, B.A., Ph.D.	Lieut.-Col. L.M. Davies, M.A., F.G.S., F.R.S.E.
William C. Edwards, Esq.	Percy O. Ruoff, Esq.
Robert Duncan, Esq., M.B.E., I.S.O.	Rev. Charles W. Cooper, F.G.S.
Louis E. Wood, Esq., M.B., D.P.H.	Willson E. Leslie, Esq.

Honorary Treasurer.

R. Duncan, Esq., M.B.E., I.S.O.

Honorary Editor of the Journal.

Rev. Principal H. S. Curr, M.A., B.D., B.Litt.

Honorary Secretary, Papers Committee.

W. N. Delevingne, Esq.

Honorary Secretary.

Lieut.-Col. T. C. Skinner, late R.E., F.R.Met.S.

Auditor.

E. Luff-Smith, Esq. (Incorporated Accountant).

Secretary.

Mr. A. E. Montague.

4. Election of Officers.

In accordance with the Rules the following Members of Council retire by rotation: Alfred W. Oke, Esq., B.A., LL.M., F.G.S.; Rev. Principal H. S. Curr, M.A., B.D., B.Litt., and W. N. Delevingne, Esq., who offer (and are nominated by the Council) for re-election.

5. Obituary.

The Council regret to announce the deaths of the following Members and Associates:—

J. Davies Bryan, Esq., E. A. Everett, Esq., Benjamin I. Greenwood, Esq., Mrs. E. S. C. Hutchinson, Miss E. M. Herriott, Miss J. A. Johnstone, Dr. James Knight, G. B. Michell, Esq., O.B.E., the Rev. Dr. H. C. Morton (Member of Council), G. Vanner Rowe, Esq., Rev. Rupert S. Strong, Captain A. H. F. Young.

6. New Members and Associates.

The following are the names of Members and Associates elected up to the end of 1936:—

LIFE MEMBER: Ian N. W. Mackie, Esq.

MEMBERS: Dr. J. Barcroft Anderson, Arthur J. Bean, Esq., Rev. H. A. Edwards, L.Th., Major E. F. Holland, R. A. Laidlaw, Esq., Sir F. D. Outram, Bart., O.B.E., Douglas J. Reid, Esq., Colonel A. H. Van Straubenzee.

LIFE ASSOCIATES : John Sales, Esq., Rev. Prof. A. K. Rule, Ph.D.

ASSOCIATES : Dr. J. D. Bradley, Rev. C. Cooper, M.A., Major H. C. Corlette, O.B.E., David S. Duff, Esq., The Rev. H. W. Funnell, The Rev. John Howe, Miss Mary Hodgkin, James Cuthbert, Esq., F. Junkison, Esq., J. P. Lane, Esq., E. T. Morris, Esq., Rabbi E. Munk, Ph.D., Brigadier N. M. McLeod, D.S.O., M.C., H. R. Kindersley, Esq., B.A., Rev. F. J. Liebenberg, B.A., Rev. Thomas Miller, M.A., Rev. A. B. Miller, W. A. Pite, Esq., F.R.I.B.A., Eric W. Russell, Esq., B.Sc., James Ryley, Esq., W. M. Reid, Esq., Rev. S. M. Robinson, D.D., James S. St. Clair, Esq., Lady Sydenham of Combe, Major C. E. Salvesen, R.E., J.P., J. A. Thompson, Esq., M.Sc., F. W. Turner, Esq., B.Sc., W. T. Walker, Esq., B.A., M.B., Ch.B., Rev. J. R. S. Wilson, M.A.

LIBRARY ASSOCIATES : Palestine Exploration Fund, Gloucester Public Library, Auckland University, N.Z., Victoria College, N.Z., Canterbury College, N.Z., Otago University, N.Z., Dr. Williams's Library.

MISSIONARY ASSOCIATE : The Rev. H. S. Nesbitt.

7. *Number of Members and Associates at December 31st, 1936.*

Life Members	...	...	14
Annual Members	...	...	88
Life Associates	...	...	44
Annual Associates	...	...	279
Missionary Associates	...	...	11
Library Associates	...	...	36
Student Associates	...	...	5
Total nominal membership			477

8. *Donations.*

Anonymous, £1 1s. ; Anonymous, £1 1s. ; Anonymous, £10 9s. 6d. ; W. H. Boulton, Esq., £1 1s. ; C. E. Howkins, Esq., £1 1s. ; R. G. Lundy, Esq., I.S.O., £1 ; George Neville, Esq., 2s ; Rev. R. C. Oake, £5 ; Major W. J. Rowland, 11s. 6d. ; Rev. H. T. Rush, 9s. ; B. P. Sutherland, Esq., 12s.

In addition a generous member has offered a contribution of £5 (or more) to any fund for a special effort to make the objects of the Society more widely known, at the same time suggesting that 20 further subscriptions of £5 and 50 at £1 would make a good beginning.

9. *Finance.*

Survey of the finances of the Institute for 1936 reveals elements of light and shade. Compared with the preceding year, there was a reduction of £33 in our total expenditure. On two principal items, Rent, etc., and Printing and Stationery, there was an aggregate saving of £50, but this was offset by increases, amounting to £17, in Postages and Bank Charges and Sundries.

On the Income side a welcome increase of £20 can be noted in subscriptions. The sale of publications brought in also £37 10s. more than in 1935, but the principal source being the disposal of stocks of old volumes, it should be regarded as a non-recurring windfall. At the same time it will be observed with regret that the amount of Income Tax recovered is down by nearly £13. Quite recently the Inland Revenue Authorities have contested the allowance of such repayments in respect of subscriptions to the Institute. At present the matter is *sub judice*, and though on behalf of the Institute a strong case has been put forward for continuance of the relief, for the time being the issue hangs in the balance. But for this unexpected development the total revenue for the year might possibly have balanced the expenditure. As it is, a deficit of nearly £23 appears on the Income and Expenditure Account. Incidental receipts from Donations, etc., have extinguished this in effect, and the net result for the year, as shown in the Balance Sheet, is a reduction of £4 in the accumulated adverse balance, which now stands at £290, as against £294 on 1st January.

On the whole the conclusion to be drawn from the 1936 Accounts is that adventitious sources of revenue are an uncertain basis of finance. We therefore plead for substantial increase in membership (permanent rather than transitory) and, by consequence, of regular, dependable subscriptions, as truly necessary for effective continuance of the work of the Institute.

The Council desire humbly to express their consciousness of the Divine blessing throughout the year under review.

ALFRED W. OKE,
Chairman of Council.

BALANCE SHEET, 31st DECEMBER, 1936.

LIABILITIES.

SUBSCRIPTIONS PAID IN ADVANCE ...

£ s. d.
9 9 0

SUNDRY CREDITORS for :—

Printing and Stationery ...

Audit Fee ...

156 4 9
3 3 0

LIFE SUBSCRIPTIONS :—

Balance at 1st January, 1936

Additions ...

273 9 0
42 0 0

Less Amount carried to Income and
Expenditure Account ...

315 9 0

“GUNNING” FUND (*per contra*) ...

Balance at 1st January, 1936

Add Dividends and Interest ...

304 19 0
508 0 0

“LANGHORNE ORCHARD” FUND (*per contra*) ...

Balance at 1st January, 1936

Add Dividends received ...

200 0 0
36 0 9

Deduct :—

Prize and Expenses ...

45 1 11
29 4 0

15 17 11

ASSETS.

CASH AT BANK :—

Current Account ...

“Gunning” Prize Account ...

“Langhorne Orchard” Prize Account ...

155 13 7
78 14 3
15 17 11

STAMPS ■ HAND ...

250 5 9

SUBSCRIPTIONS IN ARREAR :—

Estimated to produce ...

20 18 6

INVESTMENTS :—

“Gunning” Fund :—

£673 3½ per cent. Conversion Stock at

Cost ...

508 0 0

“Langhorne Orchard” Fund :—

£258 18s. 3½ per cent. Conversion Stock

at cost ...

200 0 0

■ Schofield “Memorial Fund :—

£378 14s. 6d. 2½ per cent. Consolidated

Stock at cost ...

220 0 0

928 0 0

"SCHOFIELD" MEMORIAL FUND (*per contra*)

Balance at 1st January, 1936

Add Dividends received

Deduct:—

Prize

220 0 0

4 19 4

9 9 4

14 8 8

10 0 0

4 8 8

£1,500 16 7

INCOME AND EXPENDITURE ACCOUNT:—

Balance at 1st January, 1936

Add Excess of Expenditure over

Income for the year 1936

Deduct:—

Donations

"Langhorne Orchard"

Fund Contribution to

Expenses

294 2 9

22 12 6

316 15 3

21 16 0

5 0 0

26 16 0

289 19 3

£1,500 16 7

I report to the Members of the Victoria Institute that I have audited the foregoing Balance Sheet, dated 31st December, 1936, and have obtained all the information and explanations I have required. I have verified the Cash Balances and the Investments. No valuation of the Library, Furniture or Tracts in hand has been taken. In my opinion the Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the affairs of the Institute according to the best of my information and the explanations given to me, and as shown by the books of the Institute.

143-145, Abbey House,
Victoria Street, Westminster,
London, S.W.1.

19th April, 1937.

E. LUFF-SMITH,

Incorporated Accountant.

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st DECEMBER, 1936.

EXPENDITURE.

	£	s.	d.	£	s.	d.
To Rent, Light, Cleaning and Hire of Lecture Room	73	17	8			
„ Salary	200	0	0			
„ National Insurance	4	4	10			
„ Printing and Stationery	262	10	2			
„ Postages	47	6	4			
„ Audit Fee	3	3	0			
„ Fire Insurance	12	0				
„ Bank Charges and Sundries	12	16	5			
				604	10	5
				£604	10	5

INCOME.

	£	s.	d.	£	s.	d.
By SUBSCRIPTIONS :—						
80 Members at £2 2s.	168	0	0			
3 „ at £1 1s.	3	3	0			
255 Associates at £1 1s.	267	15	0			
12 „ at 10s. 6d.	6	6	0			
Proportion of Life Subscriptions	10	10	0			
				455	14	0
„ INCOME TAX RECOVERED				11	2	4
„ SALE OF PUBLICATIONS				115	1	7
„ BALANCE, being Excess of Expenditure over Income for the Year 1936				581	17	11
				22	12	6
				£604	10	5

THE ANNUAL BUSINESS MEETING
OF THE
VICTORIA INSTITUTE

WAS HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, MAY 3RD, 1937,
AT 4.30 P.M.

The Chair being taken by ALFRED W. OKE, Esq., B.A., LL.M.,
F.G.S.

The Minutes of the Meeting of May 18th, 1936, were read,
confirmed and signed.

The Report and Accounts for 1936 having previously been circulated were taken as read. After some explanatory remarks on the work of the Society and the State of the finances, the CHAIRMAN called on Mr. R. G. LUNDY to move the *First Resolution*, viz. :—

“ That the Report and Statement of Account for the year 1936, presented by the Council, be received and adopted ; and that the thanks of the Meeting be given to the Council, Officers and Auditors, for their efficient conduct of the business of the Victoria Institute during the year.”

Mr. S. COLLETT then seconded, and after discussion, in which several Members and Associates spoke, the Resolution was put to the Meeting and carried unanimously.

The CHAIRMAN then called on Mr. DOUGLAS DEWAR to move the *Second Resolution*, viz. :—

“ That A. W. Oke, Esq., B.A., LL.M., F.G.S., W. N. Delevingne, Esq., and the Rev. Principal Curr, M.A., B.D., B.Litt., retiring Members of Council, be, and hereby are, re-elected ; also that E. Luff Smith, Esq., Incorporated Accountant, be, and hereby is, re-elected Auditor at a fee of three guineas.”

This Resolution, after being seconded by Dr. LOUIS E. WOOD, was put and carried unanimously.

Mr. W. N. DELEVINGNE was next called upon to move the *Third Resolution*, viz. :—

“ That, in accordance with Clause 3 of the Constitution, the President, Sir Ambrose Fleming, M.A., D.Sc., F.R.S.; the Vice-President, The Rt. Rev. Bishop J. E. C. Welldon, M.A., D.D.; the Chairman of Council, A. W. Oke, Esq., B.A., LL.M., F.G.S.; the Hon. Treasurer, R. Duncan, Esq., M.B.E., I.S.O.; the Hon. Secretary, Lt.-Col. T. C. Skinner, late R.E., F.R.Met.S.; the Hon. Editor, the Rev. Principal Curr, M.A., B.D., B.Litt., be, and hereby are, re-elected to their office; that Lt.-Col. F. A. Molony, O.B.E., late R.E.; A. W. Oke, Esq., B.A., LL.M., F.G.S.; Lt.-Col. Hope Biddulph, D.S.O., late R.F.A.; and Prof. Arthur Rendle Short, M.B., B.S., B.Sc., F.R.C.S., be, and hereby are, elected Vice-Presidents, and that Douglas Dewar, Esq., B.A., F.Z.S., be, and hereby is, elected Hon. Papers Secretary.”

The Rev. F. W. PITT seconded.

After some explanation by the HON. SECRETARY of the principles by which the Council were guided in making their nominations to the vacancies among Vice-Presidents, the Resolution was put and carried unanimously.

The CHAIRMAN then called on Colonel MOLONY to submit to the Meeting a draft Testimonial which it was proposed to send, as from the meeting, to Sir AMBROSE FLEMING, the PRESIDENT, the testimonial to be illuminated and suitably bound, at a cost not exceeding five guineas, of which three guineas had already been made available through the generosity of two members. Mr. DELEVINGNE seconded, after which several present expressed their appreciation of Sir AMBROSE FLEMING's services to the Society and, on being put to the Meeting, the proposal was carried unanimously.*

Brief reference was next made by the HON. SECRETARY, of the kind offer of the Rev. F. W. PITT (Annual Report, section 7) as a helpful suggestion at the present juncture, which would have careful consideration of the Council, with other matters, at their Committee of “ Ways and Means ” to be called at the close of the session.

* The wording of the testimonial and of the President's reply is appended.

The winning of the 1937 Gunning Prize Essay by the Rev. D. E. HART-DAVIES, M.A., D.D. (already intimated at the Ordinary Meeting on April 19th) was formally announced, and intimation was made of the title of the Langhorne Orchard Essay, 1939.

A letter from Dr. M. GASTER, expressing high appreciation of the work of the Victoria Institute was next read, by instruction of the Council, and a vote of thanks to Mr. OKE for presiding, proposed by Mr. CYRIL VAN LENNER and carried with acclamation, terminated the proceedings.

FROM THE VICTORIA INSTITUTE,
OR
PHILOSOPHICAL SOCIETY OF GREAT BRITAIN,
TO
SIR AMBROSE FLEMING, M.A., D.Sc., F.R.S.

DEAR SIR AMBROSE,

To-day, at the Annual Meeting of the VICTORIA INSTITUTE, you were unanimously re-elected as our PRESIDENT for the forthcoming year. At the same time it was borne in upon us that it had been our privilege to look up to you as PRESIDENT OF THE INSTITUTE for a full ten years past, your first election to the office having taken place in 1927. In grateful recollection of all this the meeting felt urged to try to express in some measure its deep sense of the outstanding character of your services to the cause of the INSTITUTE throughout the entire decade.

It is the general feeling that by the range and vigour of your intellect; by your familiarity with the higher regions of thought and knowledge; by your unique gifts of exposition and illustration; and, above all, by your clear-sighted devotion to the great truths enshrined in the Christian Revelation, you have enhanced the influence and prestige of the INSTITUTE, and added fresh lustre to the high traditions of its Presidency.

We are convinced that in the numerous valuable papers with which you have enriched the PROCEEDINGS OF THE INSTITUTE, as also in your very helpful intervention from time to time

in its discussions, there exists a body of evidence in support of the Christian position that has been a reinforcement of faith to many in these days when the assaults of doubt are otherwise so widespread.

It is further remembered with thankfulness how practical has been your interest in the general affairs of the INSTITUTE, an interest which we are happy to think is shared also by LADY FLEMING. In this connection the meeting recalls with lively satisfaction the marked benefit that accrued to the funds of the Institute from the delightful lecture and concert jointly given by you and LADY FLEMING in the winter of 1934.

Moved by these various considerations we tender again to you, SIR AMBROSE, and also to LADY FLEMING, our grateful appreciation, coupled with our warmest good wishes for the years to come.

Signed on behalf of the Meeting,

ALFRED W. OKE, *Chairman.*

T. C. SKINNER, *Hon. Sec.*

3rd May, 1937.

May 26th, 1937.

MY DEAR COLONEL SKINNER,

It was with immense surprise and yet the greatest gratification that I received this morning the very beautiful illuminated Address which the Council and Members of The Victoria Institute have sent to me. I can assure you I received it with the very liveliest sense of pleasure and gratitude that such little work as I have been enabled to do in the last decade on behalf of the Institute should have been acknowledged by this charming present. It adds to my pleasure that the name of my dear wife should be coupled with mine in remembrance. She has been in the truest sense my helpmeet in this work and but for her constant care and affection I doubt if I could have done what I have done in the last few years. We shall always keep this book with the greatest care and all good wishes for the continuation of the important work of the Victoria Institute.

May I beg to convey to the Members of Council and Members and Associates of the Institute our warmest thanks for this most valuable gift and expression of their appreciation.

I remain, Dear Colonel Skinner,

Yours most sincerely,

AMBROSE FLEMING.

803RD ORDINARY GENERAL MEETING.

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1. ON MONDAY, JANUARY 11TH, 1937,
AT 4.30 P.M.

ALAN STUART, Esq., M.Sc., F.G.S., IN THE CHAIR.

The Minutes of the Meeting of May 18th, 1936, were read, confirmed, and signed, and the HON. SECRETARY announced the following elections: As Associates, V. E. G. Hussey, Esq., B.A., Commander K. B. M. Churchill, R.N., Major C. E. Salvosen, J.P., and R. S. Timberlake, Esq.

The CHAIRMAN then called on Sir Ambrose Fleming, D.Sc., F.R.S., to read his paper entitled "On Some Methods of Determining the Age of the Earth and their Assumptions."

The meeting was then thrown open to discussion, in which the following took part: Mr. Alan Stuart, Mr. Douglas Dewar, the Rev. Dr. Hart-Davies, Prof. A. S. Eve, C.B., D.Sc., F.R.S., the Rev. H. A. Edwards, L.Th., and Dr. J. Barcroft Anderson.

After a vote of thanks had been passed to Sir Ambrose Fleming, Lt.-Colonel T. C. Skinner moved a vote of thanks to the Chairman, which was passed unanimously.

ON SOME METHODS OF DETERMINING THE AGE OF THE EARTH AND THEIR ASSUMPTIONS.

By SIR AMBROSE FLEMING, F.R.S. (President).

1.—INTRODUCTORY REMARKS.

THE question of the age of the earth is a problem which has engaged much scientific attention of late years because of its importance in relation to the theory of organic evolution. The attempt to look backward or forward in time in regard to natural events is one which has a considerable fascination for mankind, but it is one which requires great caution and restraint. This is especially the case with respect to the great problem of the age of the earth and of the beginnings of life upon it.

In dealing with such questions it is usual to assume that events took place in the past time and causes operated exactly as in the present. It must, however, be borne in mind that the

assumption of an uninterrupted continuity in Nature is an hypothesis and not a certain deduction from facts. In assuming it we are liable to find ourselves building on a foundation of doubtful strength.

In discussing the question at issue we have first to ask from what event or state is this "age" to be calculated? Is it to be reckoned from the time when the earth first began to exist as a separate globe, or from the time when the seas were formed and sedimentary strata laid down, or when life first appeared on the earth?

There seems to be a tendency on the part of some scientific writers to assume that religious thought, based on statements in the book of Genesis, is pledged to the opinion that the date of the Creation of the earth has been fixed by Ussher's Chronology at about 4000 B.C. It is hardly necessary to say here that the genealogical statements in the fifth chapter of Genesis, in conjunction with other data, tell us nothing but the date of appearance of the Adamic man made in the Image of God, and no information is given to us to enable us to interpret the "Days" of creation in terms of our time reckoning in solar years or the date of the "Beginning" mentioned in the first verse of the Bible. Nothing is there stated which can conflict with any certainly ascertained facts of scientific research.

In the first place, then, we may inquire what science has to say about the beginnings of the solar system of which our earth is a small member. The fact that all the planets rotate round the sun in the same direction and also that the spectroscope shows us a large number of chemical elements common to the matter of the earth and sun justifies the hypothesis that the sun and all its planets may once have formed part of a single mass of rarefied incandescent matter in rotation. Its cooling and contraction then caused an increase in angular velocity, and this again, according to the French astronomer Laplace, would have caused rings to be thrown off which broke up and coalesced into planets. But the total angular momentum must have remained constant. We now know that 95 per cent. of this angular momentum of the solar system resides in the orbital revolution of the planet Jupiter. An arithmetic estimate of this shows that the solar nebula could never have had sufficient angular velocity to throw off any rings at all. Hence this hypothesis of Laplace is now abandoned. Then another one originating

with Sir James Jeans, called the Tidal theory, has taken its place. It has been assumed that in the far past some other star approached the mass of matter then forming the solar system and drew out from it a long protuberance or tidal elevation. This being detached broke up into masses of matter revolving round the central sun which formed the planets. In order that this might happen it was necessary that the wandering star should come within a certain distance, neither too large nor too small, of the solar mass or else no permanent protuberance would have been formed, or, on the other hand, the two masses of sun and star might have coalesced or else formed a double star.

The vast distances between the stars compared with their size would render such an exact approach very unlikely, although the greater the age of the stellar universe the greater would be the probability of such a rare event as above described occurring and resulting in the formation of a planetary system.

Mathematical investigation starting from certain assumptions has enabled Sir James Jeans and Dr. Harold Jeffreys to make a very rough estimate that such planetary formation may have taken place between 1,000 and 10,000 million years ago. When we ask for any more definite or less vague estimate we are compelled to start the age of the earth from the time when sedimentary strata began to be formed.

As long as the earth's mass was at a higher temperature than about 100° C., all the water must have existed in the form of dense clouds enveloping an extremely hot earth. Such a condition seems now to exist in the case of the planet Jupiter. Then, when the temperature had fallen sufficiently for the water vapour to be condensed, it fell in terrific rain forming the oceans, lakes and rivers, and beginning the denudation of the igneous rocks and the formation of the stratified or sedimentary rocks.

Some estimates of the time when this event took place are now based on arguments from (i) geological, (ii) geophysical, and (iii) radio-active investigations.

2.—GEOLOGICAL ESTIMATES OF THE EARTH'S AGE.

At any one place on the earth's surface excavations, artificial or natural, show layers of various kinds of sedimentary rocks superposed on one another, and in a general way it may be said that the uppermost are the most recent. Strata of the same

kind or nature do not extend right round the earth like the coats of an onion. Nowhere can we expose the whole series of sedimentary strata lying one over the other in order of deposition. All that can be done is to compare at different localities the order of two or three types and assume in the absence of disturbance that the uppermost is the youngest.

We have no evidence, however, that strata of the same kind such as the chalk of Southern England and the chalk of Southern India were deposited at the same time. Nevertheless, geologists have been able, as they think, to arrange a series of some 15 or 16 great successive systems, arranged in four main groups or eras called Cainozoic, Mesozoic, Palæozoic, and Archæozoic as regards age, and determine more or less roughly the average thickness of each set or system.

The conclusion is that the total amount of the sedimentary rocks may be from 100,000 to 500,000 feet in thickness produced by aqueous wearing down of primal or igneous rocks, or other strata.

It is then assumed that if we could find out how much sediment is brought down by all the rivers in the world per annum and then divide the weight into the total weight of all the sedimentary strata we should have a number which might be taken to be the overall age of the sedimentary rocks.

But it is at once evident that any assumption of uniformity of deposit as derived from recent data may lead to the most erroneous conclusions. The rate of denudation will depend upon the rate of flow of river water and this upon steepness of channel slope and also upon rainfall, and this last is governed by many indeterminable factors. We know from other facts that there have been many elevations and depressions of continental areas, and hence any attempt to estimate rate of denudation or deposit must be largely guess work. Thus very widely different estimates have been made of the time which the Falls of Niagara have taken to cut their way back along the gorge or channel connecting Lake Erie with Lake Ontario. These lakes are separated by a distance of about 34 miles and the Falls are now about 7 miles from Lake Ontario. Estimates varying from 30,000 to 7,000 years have been given by geologists for the time of this recession. Also estimates varying from 300,000 years to 250 years have been given for the formation of certain stalactite deposits in caves.

Thus in the case of Kent's Cavern at Torquay, Mr. Pengelly, who made a great study of it, asserted that the deposit of 1-inch thickness of stalagmite might have taken 5,000 years. But Professor Boyd Dawkins estimated its rate of growth as a quarter of an inch per annum. Mr. Bruch Clark found in a Buxton cavern stalagmite coating had formed on some iron pipes at the rate of 1 inch in thickness in 4 years.

It is perfectly clear, then, that we are not in possession of any generally agreed scientific modes of geological time measurement, but only with estimates which are based for the most part on individual response to certain evidence, at any rate so far as regards times of denudation or deposit of strata. The great difficulty of any approximation to truth in regard to the rate of deposit of solid matter in stratified rocks or its removal by water power turned attention to the employment of the salinity of the ocean as a geological chronometer.

3.—DETERMINATIONS OF AGE BY SALINITY OF THE SEA.

It is clear that the oceans of the earth as first formed by the condensation of water vapour must have consisted of fresh water. Ordinary sea water contains about $4\frac{1}{2}$ to 5 pounds of solid matter or a little more in every 100 pounds of water, chiefly chlorides of sodium, potassium, calcium, and magnesium, with some sulphate of magnesium and bicarbonate of soda, and very small amounts of other salts. We then can calculate the percentage of metallic sodium in sea water at present, and this, according to some authorities, is 1.08 per cent., and the total of sodium in all the oceans of the world is estimated at 12,600 billion tons. Then a rough estimate has been made of the amount of sodium brought down per year by all the rivers which is taken as 156 million tons. Lastly an assumption is made as to the uniformity of the deposit rate over millions of years, and the result of dividing 12,600 billion by 156 million is to give 81 million years as the age of the earth from condensation of the oceans. Very similar figures are given by the *United States Geological Survey Bulletin*, as quoted by Mr. D. J. Whitney in his Paper to the Victoria Institute in 1933 (vol. 65, *Transactions of the V.I.*, p. 30). He gives 14,130 billion tons for the sodium content of the ocean and 158 million tons added per year by the rivers, thus giving 89 million years as the age of the oceans.

It is clear that if the method and the measurements are correct we ought to obtain the same age, whether we take sodium or potassium or magnesium as our index. But as a matter of fact the use of potassium gives us only an ocean age of 8·8 million years or only one-tenth of that given by sodium. It is evident, then, that there is something entirely misleading in the figures for age so obtained. This is confirmed if we consider the sulphates rather than the chlorides of the metals above mentioned. We then obtain other quite different figures for the ocean age. Professor Arthur Holmes, in his book *The Age of the Earth* (Benn's Sixpenny Series), dismisses this 89 million years as "hopelessly wrong" on the ground that the estimate of the amount of sodium brought down by the rivers, on which this age is based, is more than the amount contained in the total material denuded, and hence that the age of the ocean so reached is vastly underestimated. But against this we have the opinion of others, such as Mr. D. J. Whitney (*loc. cit.*), stating that the 89 million years is the "outside limit" for the oceanic age by salinity. Professor Holmes gives reasons in the above-named book for considering that this 89 million years should be increased to 330 million years as an appropriate estimate of the age of the oceans, but even this is considered by many to be too short to satisfy the demands of the theory of organic evolution.

It is clear, however, that we have not yet reached any certain basis for agreement. A little consideration will show that there is a source of error which has not been sufficiently considered and that so far from these sea-salinity ages being too short they may, in fact, be too long. The assumption made in obtaining them is that all the salt in the sea has been brought down to it by the rivers, and the age is obtained by dividing the total amount of salt in the sea by the estimated annual contribution of all the rivers. But the sea waves on all the coasts of the world pound up the coastal rocks and dissolve out the soluble matter and the tidal motions carry it out and mix it up. Hence a not inconsiderable amount of salt in the sea may have been contributed to the sea by the action of the sea itself, and the assumption that the only source is by the rivers will then lead to an overestimate of the distance of time at which the sea was first formed. Again we shall note presently that modern computations from radioactive transformations give ages for the earth vastly in excess of the longest obtained from the salinity of the seas. If, then, these

radio-ages are correct, the present oceans of the world have been accumulating salt for far vaster periods of time than 89 million years and they should by now have become as salt as the Dead Sea or even more so. We are not entitled, then, to say that the age of the sea obtained from its salinity is too short and to give preference to the longer ages as formed from radio-active transformations. It may be noted in passing that the shorter ages for the oceans obtained from the potassium and calcium contents may be and probably are partly due to the removal of these elements from the sea water by animal and vegetable matter. There are in sea water an immense number of small organisms called *foramenifera* which make for themselves a coating or house of calcium carbonate, the calcium being obtained from calcium salts dissolved in the sea water. Also the sea weeds or vegetable organisms withdraw the potassium salts to some extent. Hence this diminishes the total amount of potassium and calcium at present in the form of soluble salts in sea water.

4.—RADIO-ACTIVE TRANSFORMATIONS.

We turn, then, to consider the third method of determining geological time, viz., that by radio-active changes of elements.

Very soon after Röntgen had discovered the X-rays and found they could pass through many so-called opaque substances, the French chemist Becquerel noticed that compounds of Uranium had the power of fogging nearby photographic plates even when placed in black paper envelopes. M. and Mdme. Curie, two skilled chemists, soon found that Thorium compounds had the same powers as Uranium, and a long research by them ended in proving that a substance, afterwards called Radium, extracted from Pitchblende, a Uranium ore, had vastly greater but similar powers to Uranium. Then the result of innumerable researches by eminent men proved that both Uranium and Thorium spontaneously produced a series of substances each of which in a time longer or shorter changed into another, the final result in each case being the metal Lead. One of the series of such bodies is the metal Radium. The explanation formulated to explain this phenomena was that a chemical atom consists of a nucleus built up of smaller particles of matter, some called protons having a charge of positive electricity, some called electrons having an equal charge of negative electricity but a mass of only $1/1838 \cdot 2$

of that of the proton. The mass of all the protons in the nucleus taken together gives us the so-called atomic weight. The number of orbital electrons in a neutral atom gives the atomic number.

In atoms with very complex nuclei or of large atomic weight the nucleus of some of them spontaneously breaks up after a certain time; the result is to form a new kind of substance, and this again undergoes a similar change in due course. The time in which half the atoms of any mass of substance break up is called its "life," and it may vary from millions of years to a few seconds. At each of these changes or explosions of the nucleus one or other of two kinds of particles is thrown out. One called an *Alpha* particle is the nucleus of a Helium atom and consists of 4 protons held together by 2 electrons.* If this particle can pick up 2 more electrons it becomes converted into an atom of Helium gas.

The other kind of particle, called a *Beta* particle, is simply an electron. Thus if Uranium with an atomic weight of 238 and atomic number 92 throws out an *Alpha* particle it becomes converted into a substance called Uranium X1. The "life" of Uranium is about 5,000 million years. But Uranium X1 changes into Uranium X2 and that into Uranium II much more quickly by the loss of a *Beta* particle. Then this again loses an *Alpha* particle and changes to Ionium, and finally Ionium changes to Radium. This process of nuclear reduction then continues so that after the loss of 8 *Alpha* particles and 10 electrons the atom of Uranium of weight 238 finally produces an atom of Lead with atomic weight 206 and atomic number 82.

Now it has been found that chemical atoms can exist with similar chemical properties but slightly different atomic weights. Atomic weights are now reckoned on a scale which makes the atomic weight of Oxygen 16. These similar atoms of different atomic weight are called "Isotopes." Whenever an atomic weight comes out as not an integer number it is taken to be a sign that it is a mixture of various isotopes. Thus Chlorine has an atomic weight of 35.46. But it has been shown to be a mixture of two isotopes; one of atomic weight 35 and the other of weight 37. In the same way ordinary commercial lead has an atomic weight of 207.2 and it is said to have three isotopes of

* The *Alpha* particle may also consist of 2 protons and 2 neutrons. The neutron has the same mass as a proton but no electric charge.

weight 206, 207 and 208. The Uranium series ends in the production of 1 atom of lead of atomic weight 206 for every atom of Uranium broken up accompanied by the liberation of 8 atoms of Helium. The Thorium series of transformations ends in the production of Lead of atomic weight 208 and the liberation of 6 atoms of Helium for every atom of Thorium broken up.

One of the most impressive facts connected with the isolation of Radium by Mme. Curie was the discovery by M. Curie that it maintains itself at a temperature much above that of surrounding matter. This is due to the bombardment of neighbouring atoms by the *Alpha* particles hurled out from the exploding Radium nuclei with a velocity of 12,000 miles per second. All this kinetic energy must be converted into heat. This discovery, and also that radium in small quantities is very widely distributed through the earth's outer strata, created immense interest and was hailed with joy by geologists and naturalists who had been dismayed by a firm previous assertion of Lord Kelvin that the interval of time between the present and that at which the earth's surface was at a temperature of 100°C., at which all organic life on earth was impossible, was not much more than 20 million years. They declared such limits left no sufficient time for organic evolution to act. It was therefore very important for the evolutionists to give, if possible, some valid proof other than mere assertion that the oldest fossil-bearing strata of the earth have ages which are consistent with the demands of an automatic process of evolution for the development of animal life on our globe.

5.—RADIO-ACTIVE CHANGES AS CHRONOMETERS FOR GEOLOGICAL TIME.

The accumulation of knowledge regarding radio-active transformations of matter rendered it hopeful to make applications of it in fixing absolute geological time periods.

Lord Rayleigh made determinations of the amount of Helium generated in various rock and mineral specimens containing Uranium and Thorium by experiments extending over several months. His conclusion was that a kilogram or 1,000 grams of Uranium, equal to about $2\frac{1}{4}$ lb., would generate 1 litre (=1,000 centimetres cube) of Helium in 9 million years. It will be realised that even with the greatest care there must be some possibility of uncertainty in such a slow rate of generation.

We know that 4 grams of Helium gas occupy a bulk of 22.4 litres at normal pressure (760 mm.) and temperature (0° C.), and also that 32 grams of Helium are created by the destruction of 238.2 grams of Uranium, and results also in the production of 206 grams of Lead. It follows that a million grams of Uranium (about 1 ton) would produce in one year $1/7400$ of a gram of Lead of atomic weight 206. That is about $1/5000$ th part of a grain. If, then, we can find out in any Uranium-Lead ore the amount of Lead of atomic weight 206, Pb (206), and also the weight of Uranium (Ur), and if we assume the accuracy of the figure $1/7400$, we can deduce the age in years starting from the beginning of the transformation from the formula $T = \text{Pb (206)} \times 7400 \times 10^6 / \text{Ur}$. Thus in a certain ore quoted by Professor Satterly (*Trans. Devon Assoc.* 1935) a Pitchblende from St. Ives, Cornwall, Ur was 27.59 and Pb(206) was 0.39, thus giving the age as 110 million years.

The question is, however, from what epoch does this 110 million years' start. Did the conversion of Uranium to Lead begin even before the detachment of the earth mass from the sun?

In the above case the whole of the Lead was not of atomic weight 206 but 70 per cent. of it was ordinary Lead. In another sample of ore from Quebec, Canada, the whole of the Lead had an Atomic weight of 206 and the ratio of Lead to Uranium was 10.84 to 73.08, thus giving an age of 1,030 million years. The accuracy of these figures depends, however, upon that of the determination of the Lead ratio, and this again upon the experimental figure for the Helium evolved per year from 1 gram of Uranium, which is an excessively small amount. Furthermore, how can we be sure that the whole of the Lead of atomic weights 206 or 208 has been produced from the Uranium or Thorium?

The amount of Lead ores in the world is enormous, and this metal has been used from very remote times. Moreover, large deposits of Lead ore in the form of sulphide or oxide are not in contiguity to the Uranium ore deposits such as Pitchblende. Lead is also found native, that is in the metallic condition in the Kirghiz Steppes embedded in hornstone.

The present deposits of Uranium and Thorium ores are quite moderate in extent, and it seems most unlikely that all the lead in the world has been produced *in situ* from the rarer metals by radio-transformation. If that is the case we have no certain

means of proving that all the lead found in contiguity to Uranium and Thorium in any rock specimen has been produced from them. Neither can we say that all Lead comprises only two isotopes of 208 and 206 atomic weight. The method employed as described in Professor A. Holmes' book, *The Age of the Earth*, for calculating the age of the Uranium, Thorium-Lead samples necessitates the assumption that only two isotopes of lead are present in the lead, because the equation is insoluble if more than two isotopes are assumed. Thus if we assume or know that there are only the above two isotopes present and if x denotes the percentage present of 208 lead, and A denotes the mean atomic weight of all the lead then we have the equation

$$208x + 206(100-x) = 100A.$$

This equation can always be solved, no matter what the value of A may be, and it gives us the percentages of the two isotopes present. If, however, we assume three isotopes are present, say of atomic weights 206, 207 and 208, then we should have the equation,

$$208x + 207y + 206(100-x-y) = 100A.$$

This equation with two unknown quantities cannot be solved unless we know the ratio of x to y .

It has recently been found, however, that Lead has 16 isotopes varying in atomic weight from 201 to 216. Hence it may be a very doubtful statement with regard to any rock sample to say that all lead of atomic weight 206 in it is derived by radio-active transformation from Uranium and that of 208 from Thorium and that no other isotope of lead is present. When Thorium, Uranium and Lead are present together in ores and when the average atomic weight of that Lead is known, it is not, then, quite a simple matter to decide how much of that Lead shall be considered as derived from the Uranium and how much from the Thorium present in the sample and how much from neither of them. Neither can we be certain as to the date when each transformation began. Since these Uranium Thorium Lead ores occur in igneous rock formations we are not able to fix with certainty the relation between the calculated age of the Uranium-Lead specimen and that of the stratified rock through which it intrudes, which is, after all, the chief matter of interest. It has

been found that the rate of transformation of Thorium into Lead takes place far more slowly than that of Uranium into Lead. Also that the ages calculated from the Thorium-Lead transformation are in general much lower than those given by the Uranium-Lead transformation. Thus Professor Arthur Holmes, in his book on *The Age of the Earth*, gives several instances of this. In three cases the Uranium-Lead times were 562, 614 and 577 million years, but the Thorium Lead ages from the same mineral samples gave ages of 500, 450 and 410 million years. If two clocks in one house show different times we can conclude certainly that one of them must be, and both may be, wrong. In either case we cannot be certain of knowing from them what children call "the right time." Here, then, we may have two radio-active clocks which show very different times. Professor Holmes puts forward an ingenious explanation, viz., that the Lead of atomic weight 208 has by some means been removed from the ore so that its amount is unduly small, whereas that of atomic weight 206 has not been similarly reduced. With all due respect, it would seem to require a precise confirmation of this before the hypothesis can be accepted.

The upshot of the work so far done on this subject seems to have enabled geologists to append to each geological formation in the stratified series an age in millions of years gradually increasing from the youngest to the oldest of the series. For the Tertiary series an age from 30 to 35 million years is given and for the old Lower Pre-Cambrian an age of 1,260 million years, whilst for what is termed the age of the earth a period of about 1,600 million years is affirmed. The precision of these ages and the manner in which the figures given show a regular progressive advance in magnitude in passing from geological formation to formation recent to oldest raises much doubt in the mind as to the degree to which they correspond to actual fact. The effort of many scientific minds is to find neat, simple, easily understood explanations of natural processes which are or can be considered to be automatic and involve no direct application of a Purposive Will. But the chief characteristic of Nature as we find it is a marked irregularity, and regularity does not prominently present itself. The really important question is whether there are any vital objections to these vast periods of time being asserted as the ages of the geological fossil-bearing strata of the earth?

6.—CONCLUSIONS AND ASSUMPTIONS.

We may attempt an answer to the above question by summing up the already mentioned uncertainties regarding radio-active determinations of geological age.

(1) Since all conclusions rest on the accuracy of the fundamental constant, viz., the weight of Lead of atomic weight 206 produced in one year by a million grams of metallic Uranium, which is now taken at $1/7400$ or $1/7600$ gram, and the similar constant for Thorium and Lead of 208 atomic weight, which is now taken at $1/19500$ of a gram, and as the amount of this transformation is very small, it is most necessary that these numbers should be checked by experiments made on many different samples and over as long a time as possible.

(2) No deductions as to the age of Uranium, Thorium, Lead ores can be considered as entirely trustworthy for age determination unless it has been proved by the use of the mass spectrograph or the magneto-optic method that only Lead of atomic weights 206 and 208 are present in the sample tested. Even then there is some degree of uncertainty whether the whole of this Lead has been produced by radio-active transformation from the Uranium and Thorium present in the sample. Unless these facts are certainly known the age may be greatly over estimated.

(3) Even when the above precautions are taken, we have always an uncertainty as to the chronological correspondence between the age of the Uranium, Thorium, Lead mineral sample itself and the age of the stratified rock into which it has intruded. If, for instance, an igneous rock containing Uranium or Thorium intrudes into a sedimentary formation near to the lowest part of the latter, how can we tell at what stage in the "life" of the radio-active mineral specimen or at what stage in the age of the stratified rock this intrusion has taken place? If we cannot definitely ascertain this our conclusion as to the age of the stratified rock may be quite erroneous.

(4) When every care is taken we may still have to explain the great apparent discrepancy between ages of early stratified rocks as indicated by the salinity of the oceans and the much longer periods indicated by the radio-active transformation. Owing to the influence of evolutionary theories, there seems generally to be a tendency to welcome and accept results which give great ages to origins in geological history, whilst any shorter times are

been found that the rate of transformation of Thorium into Lead takes place far more slowly than that of Uranium into Lead. Also that the ages calculated from the Thorium-Lead transformation are in general much lower than those given by the Uranium-Lead transformation. Thus Professor Arthur Holmes, in his book on *The Age of the Earth*, gives several instances of this. In three cases the Uranium-Lead times were 562, 614 and 577 million years, but the Thorium Lead ages from the same mineral samples gave ages of 500, 450 and 410 million years. If two clocks in one house show different times we can conclude certainly that one of them must be, and both may be, wrong. In either case we cannot be certain of knowing from them what children call "the right time." Here, then, we may have two radio-active clocks which show very different times. Professor Holmes puts forward an ingenious explanation, viz., that the Lead of atomic weight 208 has by some means been removed from the ore so that its amount is unduly small, whereas that of atomic weight 206 has not been similarly reduced. With all due respect, it would seem to require a precise confirmation of this before the hypothesis can be accepted.

The upshot of the work so far done on this subject seems to have enabled geologists to append to each geological formation in the stratified series an age in millions of years gradually increasing from the youngest to the oldest of the series. For the Tertiary series an age from 30 to 35 million years is given and for the old Lower Pre-Cambrian an age of 1,260 million years, whilst for what is termed the age of the earth a period of about 1,600 million years is affirmed. The precision of these ages and the manner in which the figures given show a regular progressive advance in magnitude in passing from geological formation to formation recent to oldest raises much doubt in the mind as to the degree to which they correspond to actual fact. The effort of many scientific minds is to find neat, simple, easily understood explanations of natural processes which are or can be considered to be automatic and involve no direct application of a Purposive Will. But the chief characteristic of Nature as we find it is a marked irregularity, and regularity does not prominently present itself. The really important question is whether there are any vital objections to these vast periods of time being asserted as the ages of the geological fossil-bearing strata of the earth?

6.—CONCLUSIONS AND ASSUMPTIONS.

We may attempt an answer to the above question by summing up the already mentioned uncertainties regarding radio-active determinations of geological age.

(1) Since all conclusions rest on the accuracy of the fundamental constant, viz., the weight of Lead of atomic weight 206 produced in one year by a million grams of metallic Uranium, which is now taken at $1/7400$ or $1/7600$ gram, and the similar constant for Thorium and Lead of 208 atomic weight, which is now taken at $1/19500$ of a gram, and as the amount of this transformation is very small, it is most necessary that these numbers should be checked by experiments made on many different samples and over as long a time as possible.

(2) No deductions as to the age of Uranium, Thorium, Lead ores can be considered as entirely trustworthy for age determination unless it has been proved by the use of the mass spectrograph or the magneto-optic method that only Lead of atomic weights 206 and 208 are present in the sample tested. Even then there is some degree of uncertainty whether the whole of this Lead has been produced by radio-active transformation from the Uranium and Thorium present in the sample. Unless these facts are certainly known the age may be greatly over estimated.

(3) Even when the above precautions are taken, we have always an uncertainty as to the chronological correspondence between the age of the Uranium, Thorium, Lead mineral sample itself and the age of the stratified rock into which it has intruded. If, for instance, an igneous rock containing Uranium or Thorium intrudes into a sedimentary formation near to the lowest part of the latter, how can we tell at what stage in the "life" of the radio-active mineral specimen or at what stage in the age of the stratified rock this intrusion has taken place? If we cannot definitely ascertain this our conclusion as to the age of the stratified rock may be quite erroneous.

(4) When every care is taken we may still have to explain the great apparent discrepancy between ages of early stratified rocks as indicated by the salinity of the oceans and the much longer periods indicated by the radio-active transformation. Owing to the influence of evolutionary theories, there seems generally to be a tendency to welcome and accept results which give great ages to origins in geological history, whilst any shorter times are

regarded with suspicion and considered to need explanation or rejection.

(5) It is quite possible that between the time when the earth was solidified and began its history as an independent planet revolving round the sun and the time when it had cooled sufficiently for the oceans to be formed and the sedimentary rocks began to be laid down, a very long interval of time may have elapsed. During this pre-sedimentary period the radio-active transformations in the igneous rocks may have been taking place. We have, then, no data fixing the beginnings of these processes. It must also be remembered that Uranium and Thorium have to pass through many stages before they end in Lead.

The question which is most interesting to those who disagree with current opinions on organic evolution is the fixing of the time when animal life began on the earth and especially when rational human life began. It does not help us, then, in the solution of these questions to fix a possible date for the beginning of changes in mineral samples which contain radio-active substances whilst the relation of their age to that of fossil remains in sedimentary strata is still uncertain. In this connection it should be noted that in the far past the amount of radio-active matter in our earth must have been greater, and perhaps vastly greater, than it is at present. If radio-active atoms such as those of Uranium, Thorium, Radium, etc., are being perpetually transformed into non-radio-active atoms such as Lead, and if the process is non-reversible, then it follows that there has been a steady decrease in the number of radio-active atoms present in the earth. In fact, Mdme. Joliot, the daughter of Mdme. Curie, said in 1934 at a Conference in Cambridge that radio-active matter must once have been so abundant on our earth that it would have prevented the appearance of animal life or at least of human life because the radiations from it are destructive of living animal tissue. She also expressed the opinion that there may have been atoms of a far more powerful emission than any now existing on our globe. If this was the case, then it raises the question whether the powerful emanations from one atom may not have assisted and provoked the destruction of others. In short, whether the abundance and power of radio-active matter in the past may not have hastened the rate of transformation or shortened the "life" of such elements as Uranium or Thorium which ultimately transform into Lead. In the absence of proof

to the contrary, it may be quite erroneous to deduce the age of a few isolated specimens of Uranium, Thorium, Lead ore from laboratory experiments made in periods of a few months at the present time and from rates of transformation thus determined to deduce ages of millions of years for these samples or for the strata in which they are found embedded. We know how greatly the "lives" of various radio-active elements differ from each other, ranging from a few seconds or minutes to thousands of millions of years. We do not know the reason for this difference nor why one atom should break up rather than another of the same kind in the same mass. It therefore seems rather a hazardous assumption to make that there has been no variation of life period in the past in radio-active atoms.

It is as if we were to use the birth-rate and death-rate at present prevailing in European countries to determine the population at the time of the Roman Empire without taking note of large possible changes in these rates due to improved sanitation and progress of medical and surgical knowledge in the interval. If these radio-active transformations are to be used as geological clocks, then the *onus* rests on those who use them to prove first that there has been no change in the rate of going of these clocks over spans of time reckoned in millions of years, and that is an impossible achievement. Any omission in this respect endangers entirely our confidence in the numerical results.

The confident assertion of a few eminent scientific men of the validity of the results of these age determinations is sufficient to encourage the general press and popular writers to put them forward as definitely ascertained facts. It can hardly be denied that the readiness on all hands to accept these great ages of strata and their fossil contents as proved is the outcome of a belief that the widely accepted but unproved doctrine of evolution demands a vast period of time for its operation in generating the animal and human species.

Taking all the arguments together which have been advanced in the foregoing discussion, it would seem that the great ages for the stratified rocks and their fossil contents derived from radio-active measurements must be received with a considerable degree of reserve and not admitted as giving us an unquestionable solution of the problem of the time of first appearance of life upon the earth. On the contrary, the true conclusion seems to be that those large drafts on the bank of time which automatic evolution

demands are not justified in fact but rest on assumptions which have not been demonstrated to be genuine scientific truth.

DISCUSSION.

The CHAIRMAN (Alan Stuart, Esq., M.Sc., F.G.S.) said: There are one or two things I would like to say about this most interesting paper, especially where it touches geological science. First of all, in regard to the assumption of uniformitarian principles in geology, which are looked upon with so much suspicion by many people. The geologist is justified by certain facts, that the processes of Nature have moved with velocities roughly comparable to those that are in operation to-day. In fact, if any correction must be made of estimates of the age of the earth based on the rates at which denudation is proceeding, it must be to lengthen the process, for wear and tear of the surface is going on at present somewhat quicker than is the average, as comparatively new and high mountain ranges are exposed to weathering agencies. The fact that in all the many miles of sedimentary rocks which have accumulated, the grains of sand in arenaceous beds are of the same order of size as those on our beaches and in our rivers to-day, argues that the currents of water and the winds blew with about the same velocities as they do to-day.

I feel that, in spite of what Sir Ambrose says about the methods of estimating the age of the earth based upon radio-active transformations, the fact that the results do, in fact, fall largely in the correct order, that is, according to the relative ages of the rocks from which the specimens were taken, that there must be something in the method, and that the results are of the right order. The dating of igneous rocks is done on the same principles as for fossils. If an igneous rock is intruded into a sedimentary one, it can be said that the igneous intrusion is later than the sediment. If the igneous rock has been denuded, and then covered with later sediment, it can be dated more precisely, as younger than the first sediment, and older than the second.

I must say that I am surprised that Sir Ambrose should, in a paper denouncing a method as being liable to great inaccuracies, support his statements by an argument based upon a theory which is not even accepted by a very large number of geologists! Wegener's

theory is highly suspect, and I am sure that no reliable estimates as to length of time in years can be based upon it.

I must say how much I myself have enjoyed listening to the reading of so interesting a paper. It does us good to have our assumptions questioned from time to time. I ask you all to accord to our speaker a very cordial vote of thanks.

Mr. DOUGLAS DEWAR said: I am exceedingly glad that Sir Ambrose Fleming has exposed the absurdity of the dogmatic statements regarding the age of the earth made by scientific men. T. H. Huxley rightly described science as organised common sense. Unfortunately, it is now rapidly becoming arrant nonsense. The wilder any new theory happens to be, the more readily does it seem to be swallowed by so-called scientists. A striking example of this is the way in which eminent men of science have adopted Einstein's theory of relativity, which Professor Eagle, lecturer in mathematics at the University of Manchester, describes as "the most absurd idea that has ever suggested itself to mankind."

Coming now to Sir Ambrose Fleming's remarks. He seems to accept the theory that the oceans were formed by the condensation of water vapour surrounding the earth that took place when the temperature fell. There seems to be a very serious objection to this theory, viz., the very different proportions of the various salts in the ocean and in river water. Julius Roth gives the following proportions in any given volume of water:

		Carbonates	Sulphates	Chlorides
River water	...	80%	13%	7%
Sea water	...	0.2%	10%	89%

Moreover the proportions of salts are also different in the ocean and in salt lakes. Thus:

PERCENTAGES OF THE TOTAL SALTS.				
		Magnesium Sulphate	Magnesium Chloride	Calcium Sulphate
Caspian Sea	...	23.6	4.5	6.9
Ocean	...	4.7	10.9	3.6

Therefore there is every reason to think that the sea was salt from the very beginning. This fact, of course, very greatly diminishes the age of the oceans as deduced from their sodium content.

Sir Ambrose has dealt very effectively with the objections to the radio-active method of determining the age of rocks. The Chairman says that it is not asserted that these radio-active calculations are accurate. I have not seen Professor Holmes' big book which he mentions, but there is no such warning in the smaller book, *The Age of the Earth*, published by Benn, and these figures are quoted in popular books as if they were firmly established. Thus, on page 28 of MacCabe's *The Riddle of the Universe To-day* (1934), the following words occur: "the fact that we now have four types of men earlier than 200,000 years ago."

A probable source of error lies in the existence of 16 isotopes of lead; for all we know each of these may be an end product of the disintegration of a radio-active element, and some of these elements may have disintegrated so rapidly that they have disappeared from the earth. We know that radium is one of the stages in the disintegration of uranium. For all we know, both uranium and thorium may be stages in the disintegration of such elements of higher atomic number than uranium. That this may well have happened is shown by these facts: (a) Ferni reports having made artificially a radio-active element heavier than uranium having an atomic number 93. (b) Lawrence has manufactured what he calls radio-sodium by bombarding sodium with atoms of heavy hydrogen. This radio-sodium disintegrates into ordinary magnesium in about 24 hours.

In the paper read before the V.I., to which Sir Ambrose has referred, Mr. Whitney said that the beautiful figures of the ages of the various geological epochs based on radio-active figures are what he called hand-picked. Knowing that much evidence for evolution is "cooked," I determined, when I had time, to go into this matter and did so. I came upon an article in *The American Journal of Science*, by Professor Holmes, in which he states that the lead ratios of several specimens of uraninite from the same geological formation in Gordonia, South Africa, gave lead ratios varying from 0.118 to 0.172, a variation of nearly 50 per cent. Holmes thinks the correct ratio is 0.131, but he has to admit that the ore which gave the highest ratio was specially selected on account of its fresh appearance, and that neither its chemical nor its physical properties are such as to suggest that its lead ratio is too high by over 30 per

cent. Facts such as these show how unreliable this test is and indicate that some of the supposed uranium lead in these ores is not such. The truth is that there is no known reliable test of the age of the earth: all estimates, no matter on what ground they are made, are worthless.

The Rev. Dr. D. E. HART-DAVIES congratulated Sir Ambrose on the vigour and the lucidity with which he had presented the subject. He quoted the dictum of the late Prof. T. H. Huxley: "The ever-recurring tragedy in the realm of science is a beautiful theory killed by an ugly fact." He was amazed when he contemplated the changes in the realm of scientific theory in recent years, especially in chemistry. Less than half a century ago, he used to be impressed with the scientific emphasis which was laid upon the laws of Nature which could never vary, and the constitution of the chemical elements which could never be changed. But now it transpires that elements like uranium can be transmuted into lead! And apparently there is more than one kind or *isotope* of lead! Sir Ambrose had demonstrated the uncertainty of the data upon which calculations of the age of the earth are based. In fact, there is apparently only one date which we can accept with any degree of assurance—a date which occurs in a very ancient volume: "In the beginning." At present it would seem that science can add little thereto.

Professor A. S. EVE, C.B.E., M.A., D.Sc., F.R.S., said: Continuity in Nature has recently received remarkable confirmation in some work by G. H. Henderson, and others, at Dalhousie University. Specks of uranium or thorium in sheets of mica produce haloes of different radii caused by the ejection of the various alpha particles. The size of these rings proves that such particles had the same velocities in distant ages as they have to-day. The rocks are of pre-Cambrian period and were formed probably a few hundred million years ago. The authors, in the January, 1937, number of the *Proceedings of the Royal Society*, justly remark: "The good agreement of the alpha-particle ranges deduced from these ancient haloes with the results of present-day laboratory experiments furnishes striking proof of the invariability of physical laws throughout the vast extent of geological time."

It is possible to select ores of uranium, almost free from thorium, and to determine the atomic weight of the contained lead so as to ascertain whether it is "common" lead or that derived from the uranium-radium family. This has been done for ores from Bohemia and from the Great Bear Lake in Canada. The results indicate that these ores were formed from 700 to 1,200 million years ago.

On the other hand, the existence of uranium in the earth to-day shows that there is an upper limit to the age of the earth. Since uranium decays to half value in a period of the order of a thousand million years, it is fairly safe to say, for example, that the earth is *not* twenty thousand million years old.

Finally, it must be remembered that what are known as "values"—justice, honour, beauty, love, truth, holiness—have nothing to do with physical measurements, or the age of the earth! They are beyond temporal or material things.

On the other hand, from the point of view of knowledge, that is science, it is important to make successive advances towards truth in all directions. The approach to correct estimates of the ages of strata in the earth is proceeding in a satisfactory manner which might be compared with the gradual discovery of the true distance of the earth from the sun. At present, the indications are that life appeared on this planet many millions of years ago, and it is difficult to conceive of any objection to this view, should it be confirmed by many converging lines of evidence.

Those who find these rather large figures difficult to credit may do well to remember that there was a time not many years ago when it would have been impossible to believe that the national debts of Great Britain and of the United States should each exceed seven thousand million pounds!

Rev. H. A. EDWARDS asked if the action of frost and glacial ice were not the real denuding agents, and suggested that the work of water and wind was more truly that of distributing matter already denuded.

Dr. J. BARCROFT ANDERSON said: Many scientists have addressed you this evening. For over twenty years I have had experience of courts of law as a Crown witness. I am a barrister. I have been considering this question of the age of the earth during the past

twelve years, and I am convinced that there is no evidence by which the physical matter of this earth can be proved to have been in existence for as long as eight thousand years. In Africa there is a verdict, "Absolution from the instance with costs." I believe such to be the only verdict that could be given in any legal attempt to prove a longer existence for the physical matter of this earth.

WRITTEN COMMUNICATION.

Lt.-Col. L. M. DAVIES, M.A., F.G.S., F.R.S.E., wrote: I have read Sir Ambrose Fleming's paper with much interest. I feel unable to comment upon his criticisms of age as deduced from the relative amounts of radio-active elements and their apparent derivatives found in various rocks, since I do not know enough about that subject; but I agree with his conclusions regarding age-calculations based respectively upon the total amount of sediments now in existence and upon the present salinity of the sea, to which I would add the following considerations:—

1. *As to estimates of age from sediments:*

- (a) Most of the rocks now forming land surfaces are themselves composed of sediments; hence rivers and coastal waves are less often engaged in breaking down primitive igneous rocks and thus adding to sediments, than in simply disintegrating and redistributing existing sediments. This is bound to falsify any argument based upon dividing total existing sediments by the present rate of bringing sediments down to the sea. Great "unconformities" commonly exist in stratified sequences, and these are often due to the removal of masses of sediments from older beds and their rearrangement as newer ones. Fragments of older beds are often found in younger ones, and many sedimentary rocks have been broken up and reformed time and again.
- (b) Some deposits are not marine but terrestrial: lacustrine, fluvatile, vegetable, glacial and æolian.

These two considerations act in opposite directions: (a) increases, while (b) decreases, time calculations of this sort. But they unite to add uncertainty to the results obtained by such calculations.

2. *As to deductions from marine salinity :*

(a) We must again remember that rivers and coastal waves are not now generally engaged in attacking primitive igneous rocks, but in breaking up and redistributing sedimentary rocks whose associated salts have already been largely removed. In other words, the earliest river and sea action (when the earth's crust was almost exclusively formed of primitive igneous rocks, with full original complement of salts) must have added much more rapidly to ocean salinity than such action does to-day. This would tend greatly to reduce the earth's age as deduced from ocean salinity.

(b) It also seems to me that the first waters to settle, as torrents of almost boiling rain, upon the surface of an earth only just sufficiently cooled not to throw them entirely off again as steam, must have had a very solvent effect upon the salts in the heated surface rocks. It seems almost certain, upon any natural theory of earth origin, that the seas must have been very considerably charged with matter in solution before they first assumed fairly permanent form, and before the mechanism of river action was first established. Immense volumes of steam must have been rising all over the world, and floods of heated waters continually pouring over the early land surfaces, long before river and sea actions took their present distinctive forms ; and to neglect the powerful effects of these intermediate operations, and merely to consider annual increments of salt brought down by existing rivers, must tend to exaggerate estimates of age based upon total salts now in solution in the seas.

(c) As some offset to the above, we may remember that a quantity of former sea salts is now locked up in land deposits (*e.g.*, the Punjab Salt Range in India) ; and a quantity of sea brine is regularly blown hundreds of miles inland in some districts (*e.g.*, over the Rajputana Desert, whose sands are apparently becoming increasingly saline). On the other hand, these same former sea salts must again

return to the sea under river, etc., action ; and so a fraction of the salts now going down to the sea are probably just returning to it.

Here again the considerations act in opposite directions, although (a) and (b) would seem greatly to preponderate over (c). In my opinion the sea must have acquired salinity at an increasingly greater rate as we go backwards in time ; and any calculations which ignore this are bound to give excessive results.

Professor JOHN SATTERLY, D.Sc., F.R.S. (Can.), wrote : The questions which Sir Ambrose Fleming raises as to the validity of the arguments, based on radio-activity, which give the age of the earth as many millions of years, cannot be definitely answered. In my paper in the Devonshire Transactions of 1935 (Vol. LXVII), I specifically mention the assumptions made, and I also proceeded on the truth of these assumptions. If the assumptions are false, the method is unreliable. But I doubt if Nature is as irregular as Sir Ambrose Fleming suggests. The weather undoubtedly is variable but the vaster motions in the solar system would be called very constant except by the exacting astronomer. But once we agree that the processes we use in our calculations require many millions of years for their working, there seems to me no objection to allowing them a thousand million years, since such periods are quite unrealisable to our finite minds. If the radio-active clock is the only one we have and if, as far as it has been tested, it is regular, then we might as well assume it has been regular ever since it started.

We might call our calculated ages the " effective " ages, just as we say the effective temperature of the surface of the sun is about 6,000 degrees C. (i.e., as far as the effects we are mainly interested in, that is, its temperature). For any igneous rock we assume that while it was in the liquid form the lead separated out from the uranium, but, after the rock solidified, the lead remained *in situ*, unless chemically removed. Thus what we call the age of the rock is the age since solidification. The greatest calculated ages are naturally obtained with rocks from which there has been no removal of lead.

The multiplicity of isotopes of lead certainly makes the problem very nearly insoluble and, as calculators, we hope the experimenters on *isotopes* will soon find data more easily manipulated.

I welcome Sir Ambrose Fleming's paper as an endeavour to show that we must proceed cautiously in giving our age estimates. No one knows that better than those actually engaged in the work. Others not so engaged may, too readily, accept our estimates as final and to them Sir Ambrose Fleming's paper should be a valuable corrective.

LECTURER'S REPLY.

The Chairman has expressed his belief in the doctrine of uniformity in geology, and there was no doubt that a majority of geologists at the present day would agree with him. Nevertheless, it is certain that this doctrine is merely an hypothesis, and not yet demonstrated as a truth by unquestionable facts. Broadly speaking, it asserts that geological agencies effecting earth changes have not been more violent or rapid in the past than at the present time and catastrophic events are therefore excluded by it. It is proverbially a difficult thing to prove a negative proposition, namely, that some things or some kind of events have not happened.

We have illustrations in other sciences of the error of applying a doctrine of uniformity. Thus mathematicians are acquainted with many curves which exhibit perfect continuity over a large range except at one or more singular points. Then again, all the great physical discoveries of the last-half century (such as X-rays, radio-activity, the atomicity of electricity, and action and the propagation of long and short electromagnetic waves round the earth) have come as enormous surprises because completely discontinuous with the previously acquired knowledge. To cite yet another illustration, would any zoologist acquainted only with present-day fauna on this earth be justified in applying a doctrine of uniformity and saying that no animals have ever existed larger or more powerful than those now on earth? What would be his astonishment when shown the evidence for the existence of *Baluchitherium*, an extinct rhinoceros, which was nearly 18 feet high from foot to shoulders and must have weighed 3 or 4 tons! In view of all these vast exceptions to existing things, what justification is there for embracing a doctrine of uniformity which asserts the non-existence of exceptional geological events?

The application of radio-active transformations, employed as clocks to measure geological periods, depends entirely on the

measurement of the extremely small amounts of helium, emitted by the minerals used in experiments lasting at most a few months, and then assuming that this rate has been uniform over millions of years.

Professor A. S. Eve has drawn attention in his remarks to the observations of Mr. G. H. Henderson on the pliochroic haloes in mica as showing that the velocity of the alpha particles ejected from uranium had the same velocity in the past as at present. But that does not give a proof that the emissions were not more numerous in the past, and if so, that would mean a more rapid production of lead of a certain atomic weight as an end product, and, therefore, a shorter time for its generation.

It is perfectly certain that there must have been vastly more radio-active matter in the earth in the past than at present, because it is continually disappearing; and the onus rests on those who use it to measure geological time to prove it has not been more powerful.

I am glad to have the additional criticisms of Mr. Douglas Dewar on possible sources of error in the sea-salinity method of deducing ocean age. The torrential rain which fell on the earth on condensation of the water vapour must have been non-saline, but it fell on a hot earth and would instantly have dissolved out the soluble matter in it, and therefore greatly abbreviated the period of time in gaining the present degree of salinity of the oceans.

The remarks of Col. L. M. Davies also show how untrustworthy are the arguments for age depending on salinity.

With regard to the question put by the Rev. H. A. Edwards as to the relative action of frost, glacial action, water, and wind, as geological implements, I would refer him to the book *Scrambles Amongst the Alps*, by Mr. E. Whymper, who, on p. 268, discusses it, and decides that sun, frost and water had more influence in earth sculpture than glaciers.

The importance of opposing any incompletely proved extensions of the ages of sedimentary strata, especially the recent, lay in the fact that these possibly erroneous conclusions lent support to the theory of human evolution based on the assumption that fragments of skulls, or skeletons of human type, had the same great age as the strata in which they were found embedded. In conclusion, he did not consider the discussion had seriously invalidated any of the conclusions in his paper.

The Chairman expresses surprise that I have mentioned Wegener's theory in connection with the question of the age of the earth, but he will have noticed that I alluded to it in terms of great caution. As, however, I do not wish to weaken my arguments against the methods which are accepted by geologists by including one that is, as the Chairman says, highly suspect, I have, in the revised proof of my paper, excluded the paragraphs referring to Wegener's theory, but I contend that my other arguments against the conclusions drawn have not been effectively answered.

804TH ORDINARY GENERAL MEETING.

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, JANUARY 25TH, 1937,
AT 4.30 P.M.

THE REV. CHARLES W. COOPER, F.G.S., IN THE CHAIR.

The Minutes of the previous meeting were read, confirmed and signed and the HON. SECRETARY announced the election of J. W. Wenham, Esq., B.A., as an Associate.

The CHAIRMAN then called on H. R. Kindersley, Esq., B.A., to read his paper entitled "The Person of Christ. Doctrine of the two Natures."

THE PERSON OF CHRIST. DOCTRINE OF THE TWO NATURES.

By HENRY R. KINDERSLEY, Esq., B.A., Barrister-at-Law.

PERHAPS there is no item in the Creeds of Christendom which has occasioned so much questioning, and been responsible for so many defections from the orthodox Faith, as the doctrine of the *two natures in the one Person of Jesus Christ*—"Perfect God and Perfect Man." It is asked how it is possible that the Perfect Godhead, with all its inherent powers, could exist in full function in the nature of One who was Perfect Man, with all the limitations which humanity entails. How can anyone *know* all things, and at the same time *not know them*? So stated this amounts to a contradiction in terms.

Many of those who were troubled by these difficulties hailed "evolution" as a possible avenue of escape (even if only "by way of avoidance" and not explanation), always in the belief that the persistent search of the Scientists might be trusted eventually to discover the missing evidence which up to date has restricted "evolution" to the category of pure speculation.

The logic of "evolution" demands that in the interests of "uniformity" belief in the Godhead of Jesus Christ—the keystone of the Christian religion—must be abandoned.

The next step was inevitable, and the Modernists, denying His Godhead, and ignoring the power of God, have lowered the Jesus Christ of the Gospels to the level of the fallen offspring of Adam; and consequently His recorded utterances are declared to be frequently in error, though His general teaching is said to be true! (see "Statement of Belief" of C.M.S., November, 1922; also the proceedings of the Modern Churchman's Conference, 1934). This is the Modernist's reading of the doctrine known as *Kenosis* based on the words of St. Paul in Philip. ii, 7. The modernist view is that "the Christ Spirit" descended upon Jesus, the "natural" son of Joseph and Mary. This novel doctrine of course plays havoc with the Gospel narratives.

The Creationists, who stand for the Orthodox Faith, as enunciated in the Creeds, could not remain unaffected by the difficulty presented by the doctrine of the "two natures" in the single Person of Jesus Christ; so, in order to admit His Humanity, they had to concede the "veiling" of His Godhead. If disposed to advance cautiously in this direction, nevertheless they felt themselves supported by the words of Scripture—"the veil, that is to say, His flesh" (Heb. x, 20).

* * * * *

Now if, on *New Testament authority*, it can be shown that in Jesus Christ the inherent powers of Godhead, in everything affecting His incarnate state, were *wholly veiled*, it is not difficult to believe that a great body of Christian opinion might be won back from the materialism which the logic of "evolution," accepted on trust as something more than a theory, would seem to induce; always provided that such *veiling* does not in the smallest degree invalidate the simple meaning of His words and actions, even as it surrenders nothing of unquestioned faith in His identity as "the Only Begotten Son of God."

The "*veiling*" which is now in mind, would seem to have been complete, amounting at His Incarnation to a temporary abeyance of His powers, wherever the retention of His own divine powers would militate against the full realisation of His adopted Humanity. At the same time, the retention by Jesus Christ of His Divine powers in the spiritual world (the power to forgive sin, etc.) would obviously not derogate in any measure from His voluntary abnegation. It is in this sense only that the

expression "wholly veiled" is intended to be used in this connection.

In a whole-hearted belief that the Bible not merely "contains" but is "*the word of God*," this line of thought is offered in humble reverence, which—new, perhaps, to some if not to all Bible Students—has helped to clear away doctrinal difficulties presented by the necessity of interpreting the Creeds which throughout the centuries have buttressed the Church of Christ. If it sacrifices one single fundamental point of the Orthodox Faith, as enunciated by the Apostle's and Nicene Creeds, then this thesis must be treated as illusory.

Our Lord's repeated reference to Himself (eighty times in the Gospels) as "*The Son of Man*," justifies us in seeking the whole import of this title. What deep satisfaction it brings, and what glorious light it sheds on the great purpose of God, to realise that His Incarnation provides the manifest example of *The Man* who fulfils and restores in Himself the lost opportunities of the original innocent Adam, and of a sinless and triumphant *Humanity*!

Assuming that the Great Plan of Renunciation was "fore-ordained before the Foundation of the World," and assuming that we agree that some of the absolute attributes of the Godhead in Christ were "*veiled*" in His Incarnation (*e.g.*, His subjectiveness to physical hunger, thirst, etc.), then *the degree of "veiling" is the point at issue*. Have we not strenuously held to the view of a very *partial "veiling"* only because, to concede the *total "veiling"* as previously defined (the "*emptied Himself*"—*ἐαυτὸν ἐκένωσε*—of Phil. ii, 7) seemed to surrender the only ground on which His supernatural life could rest? How else were His miracles worked, and how else was His infallibility secured? To answer these questions is the purpose of this paper.

* * * * *

Certain statements of Jesus Christ have always puzzled the Church, and not least among them His declaration—"If ye had faith as a grain of mustard seed, ye might say unto this sycamore tree, be thou plucked up by the root, and be thou planted in the sea; and it should obey you" (Luke xvii, 6). And again, "If ye have faith as a grain of mustard seed, ye shall say unto this mountain, Remove hence to yonder place, and it shall remove" (Matt. xvii, 20). In other words, Jesus Christ

assured His Disciples that the most prodigious powers were available to *humanity* through the agency of faith. The Creationists are bound to give full value to these words or else to abandon their position to those who regard them as expressions of mental rhapsody.

Here again, as elsewhere, it is wonderful how the Bible can be relied upon to explain itself. On close study, we are impressed by the fact that for the second time in the Gospels (Matt. xvii, 20 ; Luke xvii, 6) the *mustard seed* should be chosen to illustrate Christ's meaning. Certainly most people have thought the meaning of His words to be—"If men had faith as *little* as a grain of mustard seed, they could move trees and mountains." This interpretation, however, seems to contradict the experience of Christians, past and present, even as it misses the point of the words, "O ye of *little* faith." But another meaning may be found capable of explaining passages that are otherwise difficult. Both the Gospels named had previously recorded the parable of the Kingdom of Heaven, which in its wonderful growth was likened to the growth of the mustard seed, which, from a tiny seed, if sown in good ground, could become "a great tree" (see Matt. xiii, 31 ; Luke xiii, 19).

Was not the meaning of Our Lord, when revealing to His disciples the powers of faith which were to be open to them and to His Church, just this? If they had faith like the mustard seed (of whose wonderful power of growth He had previously spoken), *then when faith has reached a growth corresponding to the "great tree"*—the perfected growth of the mustard-seed—they would be enabled to work miracles.* It is worth noting that Jesus did not say "faith as *little* as a grain of mustard seed." In both illustrations the point was the *marvellous growth* of which the grain was capable.

St. Paul, too, seems to take this view of Christ's words—"Though I have *all faith*, so that I could remove mountains" (I Cor. xiii, 2). Among these wonderful powers were the following: Superhuman power over the forces of nature; power to predict future events; power to read men's minds; power to receive and reveal the great truths of time and eternity. Both before and after His Resurrection, Jesus declared that

* "Supernatural effects" defying explanation by laws of common experience.

His faithful disciples should be the possessors of these powers ; but their employment was to be preceded by prayer and fasting. Nowhere in the Gospels does Our Lord suggest that these supernatural signs were other than the fruits in humanity of *the well-grown tree of faith*. "Why could not we cast him out?" Jesus said unto them, "Because of your *unbelief*" (Matt. xvii, 19, 20).

In the Old Testament, where some of these powers were exhibited, we can mark the long preparation of Moses, Elijah, and others before they were called upon and enabled to use them.

This brings us to the central point of our suggestion—*With the "omniscient" and "omnipotent" powers inherent in His Perfect Godhead "veiled" in His Perfect Humanity—all the powers specified were derived by Jesus Christ immediately from The Father, as One in closest communion with The Source of all power*. Christ's repeated assertion of this fundamental truth is unmistakably clear: "The words that I speak unto you, I speak not of Myself, but the Father that dwelleth in Me, He doeth the works" (John xiv, 10). "When ye have lifted up the Son of Man, then shall ye know that I am He, and that I do nothing of Myself" (John viii, 28). "The Son can do nothing of Himself" (John v, 19). "I can of Mine own self do nothing: as I hear, I judge" (John v, 30). "Father, I thank Thee that Thou hast heard Me" (John xi, 41). "Many good works I have showed you from My Father" (John x, 32).

Very striking too are the following: "All things that I have heard of My Father I have made known unto you" (John xv, 15). He certainly had not revealed all knowledge to His disciples; no human brain could sustain the knowledge of all the physical contents of the universe. "Thinkest thou that I cannot now pray to My Father, and He shall presently give Me more than twelve legions of angels" (Matt. xxvi, 53). "If it be possible, let this cup pass from Me" (Matt. xxvi, 39).

Prayer, silent or uttered, is sometimes recorded as preceding Christ's working of miracles, *e.g.*, the miracle of the loaves and fishes (Matt. xiv, 19), and that of the raising of Lazarus (John xi, 41).

Compare these inducted powers with the power of the risen Christ released from His human limitations. "All power is given unto Me in heaven and in earth" (Matt. xxviii, 18).

After His Resurrection there is no record of His praying to His Father for guidance and relief (Matt. xxvi, 39) or "giving thanks" (Luke xxii, 17). There was no need, since all power was given unto Him.

In "the Son of Man" faith unimpaired by sin had no room to grow. Graduated to suit His physical abilities, at each stage of His human existence faith in Him transcended the "great tree"; for example, it amounted in manhood to certainty of knowledge of His Father: "I know that Thou hearest Me always." Perfect Faith reciprocates perfect communion, and through perfect communion with His Father, He was supplied where necessary with the supernatural powers which were "veiled" at His Incarnation, enabling Him as "*Man*" to say to the dead, "Come forth," and to the sick of the palsy, "Take up thy bed and walk." This view can account for the "infallibility" claimed for Jesus Christ equally with the miracles which He wrought, while hampered by the conditions of His adopted humanity. Nowhere do the Gospels say that Jesus Christ during His existence on earth before His Resurrection was either "omniscient" or "omnipotent." It is not less than horrifying to imagine that Jesus Christ could have acted the part of a helpless babe in His Mother's arms, or pretended to grow in knowledge.

Corresponding powers, He promised, should be possessed by the disciples when their faith had grown to something approaching the dimensions of "the great tree" of the mustard seed. "Verily, verily, I say unto you, he that believeth on Me, the works that I do shall he do also" (John xiv, 12)—increase of faith spells a closer communion with God. All of these powers were to be at the disposal of the Church, provided the necessary conditions were present:—

(a) The seed of Faith grown to a "great tree" in close communion with Jesus Christ "the Only Begotten Son of God," approaching His own perfect communion with the Father.

(b) The thing desired must be in accordance with the *will* of God: the life of Christ was one persistent desire to do the *will* of His Father.

(c) Necessity for the miracle must exist; Jesus Christ never worked miracles to satisfy curiosity. On his own showing, His miracles were wrought to reveal Himself to those who

might be looking for Him. Drawn direct from God Almighty, such miraculous powers would seemingly be commensurate with the magnitude and urgency of the crisis or necessity which called for them.* Physical trees and mountains† can never be moved capriciously merely to demonstrate the possession of such power by men. Yet in a portentous crisis "Nature" responded to man's appeal when the sea divided to save Israel from the host of Pharaoh, and when the earth opened to swallow up Korah and his rebel company; and again when fire descended upon "the altar to The Lord" built by Elijah on Mount Carmel. The water, too, became wine, and the five barley loaves and few small fishes increased to an adequate supply to feed the hungry thousands—physical proofs to His disciples, like those who were sent to John the Baptist, that there stood One among them, whom as yet they knew not, who was indeed "He that should come."

* * * * *

St. Paul throws a flood of light on the problem of the *perfect humanity* of Jesus Christ by speaking of Him as "*The Last Adam*" and "*the Second Man*" (1 Cor. xv, 45, 47). *The First Adam* was moulded from the dust of the ground, and into the lifeless shape God breathed the breath of life; and "Man" was made "in the image" of God. The material and human part of the "*Last Adam*" was graciously housed in the Virgin Mother, and this *lifeless form* received the Life of the "Only-Begotten Son of God." Jesus Christ was thus truly the "second man" Adam, with functions like Adam's—wholly human; a perfect Man, endowed with free will; sinless like Adam at his creation, and tempted like *unfallen* Adam, from His birth to His grave. ("In all points tempted like as we are yet without sin.") His agony in the garden, and His cry on the Cross testify to His life-long endurance of temptation: *but Jesus Christ "The Son of Man" triumphed—where the Man Adam fell.*

* That "economy of miracle" has marked God's revelation of His power to men, is fully recognised by all devout Students of the Bible.

† To limit Christ's words, as is suggested, to symbolical "Mountains of difficulties," i.e., to accept a subjective and reject the objective meaning, besides stumbling over "the Sycamore tree," marks a definite disbelief in God Almighty's power over the Universe of His Own creating, and makes of Our Lord's Prayer—"Give us this day our daily bread"—an empty form of words, stripped of its heartening reality.

His *death* on the Cross was to avail for the washing away of sins, and His *life* was to be the great example of the perfect "Man" *born in innocency*, with *free will* to obey or disobey*; fulfilling in every particular to its climax the *will* of The Father: *while in Himself—His Person, His Individuality, His Identity*—He was able to show men "The Father," since in His Incarnate Godhead He was as ever "One with the Father"—*GOD ALMIGHTY*.

* * * * *

Thus, without having recourse to metaphysics (*e.g.*, distinctions sought to be drawn between His conscious and subconscious mind), we can say with clear understanding that Jesus Christ was "*truly Man*," as well as "*truly God*," with the super-human powers of His Godhead over the natural universe "*veiled*," while His *natural powers* (as distinct from those unlimited miraculous powers drawn from the Father) were the normal, limited and hitherto unrealised powers of the *unfallen* Humanity.

The "veiling" was the first act in the great scheme of Christ's renunciation: yet "in Him dwelleth all the fullness of the Godhead bodily" (Col. ii, 9).† Yes, "*bodily*" (Incarnate); for by His Incarnation "the Son of Man" yielded nothing of His claim in the fullest sense to be "the Only-Begotten Son of God" (John iii, 16, 18). His Identity with the "I AM" of eternity would not be lost or even affected by the "veiling" of His Divine powers in His Incarnation.

That this *Identity* with the Second Person of the "Deity" was not impaired by His Incarnation is well attested in the Gospel narratives: from this we may believe that at an early age He realised, though, perhaps only dimly, *who He was*: "Wist ye not that I must be about My Father's business?" Would not His mother have prepared Him in some degree for this awe-inspiring knowledge? The full realisation at any rate

* "Thinkest thou that I cannot now pray to My Father, and He shall presently give me more than twelve legions of angels. But how then shall the Scriptures be fulfilled . . . ?" (Matt. xxvi, 53.)

† Mark the present tense "dwelleth," perhaps referable to His then and now exalted state, and in the light of the previous verses 2 and 3, this reading seems very probable.

"Fullness" in "The Word . . . made flesh" is explained to indicate "grace and truth" (John i, 14), and not "omniscience" or "omnipotence."

must have come at His baptism, when the Voice proclaimed to *Himself*, "Thou art My beloved Son, in whom I am well pleased" (Luke iii, 22; Mark i, 2; cf. Matt. iii, 17).

At His Transfiguration the manifestation of His Godhead was made also to *His three disciples*. "This is My beloved Son, in whom I am well pleased: hear ye Him" (Matt. xvii, 5; also Luke ix, 35). These words in singular and unique recognition of His Deity issued from God The Father. Then, in further proof, the following quotations confirm His own personal claim, "I give unto them eternal life" (John x, 28); "I and My Father are one" (John x, 30); "He that hath seen Me hath seen the Father" (John xiv, 9); "Before Abraham was I AM" (John viii, 58)*; "... and ye shall see the Son of man sitting on the right hand of power, and coming in the clouds" (Mark xiv, 62); "I will raise him up at the last day" (John vi, 44); "The only-begotten Son" (John iii, 16, 18); "Who can forgive sins but God only? ... but that ye may know that the Son of man hath power on earth to forgive sins ..." (Mark ii, 7, 10).

These last words are of special value in this connection, indicating that Our Lord regarded the power to forgive sins as a Divine prerogative, and as exceptional to one living on the earth. It was a spiritual power, apparently retained from the "veiling," and exercisable in virtue of His Godhead. From His own words and actions we gather that it was a power distinguishable from the "signs [which] shall follow them that believe" (Mark xvi, 17). The retention of this spiritual power by the "Son of Man" was obviously not in frustration of the fulfilment of His perfect Humanity. Later on, after His resurrection, and after *all power* had been given to Him, in heaven and on earth, when He had breathed on His disciples, He *bestowed this wonderful gift on them* as delegates through the agency of the Holy Spirit.

Lastly, and carrying the most convincing proof that "*Deity*" was claimed by the Lord Himself, is the evidence that He accepted worship without questioning its propriety: "There came a leper and worshipped Him" (Matt. viii, 2); "there came a certain ruler and worshipped Him" (Matt. ix, 18);

* The Jews so interpreted the meaning of His Words and called for His execution for blasphemy under the Levitical law.

"then they that were in the ship came and worshipped Him, saying of a truth Thou art the Son of God" (Matt. xiv, 33); "Behold Jesus met them saying, All hail! And they came and held Him by the feet, and worshipped Him" (Matt. xxviii, 9; also Matt. xv, 25; xxviii, 17; Mark v, 6). This attitude is in marked contract to that of His Apostles, who, while exercising supernatural powers over the material world, together with that special power to forgive sins, bestowed on them as delegates by the risen Saviour, yet emphatically repudiated the worship of their fellow-creatures, which would imply their inherent possession of Divine status (St. Peter, Acts xiv, 15).

* * * * *

To accept the view outlined in this essay, claiming for its sole authority the words of Holy Scripture, seems to find at once a comprehensive and illuminating explanation of the *infallibility*, and the *supernatural power* of the "Son of Man" in His complete Humanity (making a reality of His Temptation in the wilderness; the congruous climax in reversal of the human tragedy in Eden and after),* without sacrificing in any measure His Identity as the Second Person in the Trinity of the One Almighty God "revealed" to the World in the "blessed" answer to the question—"Whose Son is He?"

It seems to give a fuller value to Canon Liddon's declaration, in his Bampton Lecture on "The Divinity of Our Lord," Lect. 8, pp. 453-472: "A sincere and intelligent belief in the Divinity of Jesus Christ obliges us to believe that Jesus Christ as a teacher is infallible . . . when we say that a teacher is infallible we do not mean that his knowledge is encyclopædic, but merely that when he does teach he is incapable of propounding as truth that which in point of fact is not true."

Also Bishop Handley Moule in his *Phillipian Studies*—"The Absolute Bondservant must exercise a perfect Bond-service; and this will mean . . . a perfect conveyance of the Supreme Master's mind in the delivery of His message." The *Kenosis* itself is nothing less than a guarantee of the infallibility. It says neither yes nor no to the question, "Was our

* His Temptation was a monumental event where "Man" is seen in action in the faithful exercise of His divine faculty of *free will*, a faculty which is always open in fallen "Man" to influences of fear and love, but is never subjected in its final decision to compulsion, which is the very antithesis of *free will*, and productive only of automaton.

Redeemer, as Man, in the days of His flesh, omniscient?" It says a profound and decisive "yes" to the question? Is our Redeemer, as Man, in the days of His flesh to be absolutely trusted in every syllable of assertion which He was actually pleased to make? "*He whom God hath sent, speaketh the words of God.*" (The comments in this Paper are made deferentially to such higher Authorities.)

Christ's *infallibility*, like His *supernatural power* as "The Son of Man," flowed, spontaneously to His requirements, from His unbroken communion with God The Father—a communion to which fallen "Man," through his developed seed of *faith in Jesus Christ* "The Only-Begotten of The Father," might aspire to approach.

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It should be clearly understood that this belief is far removed from the views of "modernism" and its interpretation of the doctrine of *Kenosis*. The doctrine so interpreted, while it denies the claim of Jesus Christ to be "the Only-Begotten Son of God," presents Him as the "natural" Son of Joseph and Mary—a richly gifted Man, "evolved" like the rest of mankind, from the atom through the beast, and from His lack of knowledge often in serious error in His teaching. Denying, too, the Christian belief in His Virgin Birth, "modernism" refuses to credit His exhibition of supernatural powers, and the Modernist is only logical when he also rejects the Gospel accounts of His Resurrection. Prof. T. H. Huxley was right when he said: "Evolution, if consistently accepted, makes it impossible to accept the Bible"—and the Bible from Genesis to Revelation, is centred in Jesus Christ. The views of the extreme Modernists are the only logical outcome of belief in the theory of "evolution," which Dr. Inge in his "vale" addresses 1934 said, "now dominates all our thought. Theology, like everything else, must grow and change" (*Church of England Newspaper*, September 21, 1934). That this view is shared in general by the Leaders of "modernism" is confirmed by Bishop Barnes in his sermon at Westminster Abbey in May, 1927, and by Prof. Bethune Baker in the November number of the *Outline*, 1929. *Evolution is indeed the "dynamic" of the whole Modernist outlook*, in which the Christ of the Gospels is a fabulous figure, and His Cross a needless tragedy. "In the light of modern

knowledge," which is an expression constantly in use by Modernists, may generally be taken to mean, "from the standpoint of 'organic evolution.'" For the Modernist, "sin," in its Biblical sense attributable to Adam's fatal fall, does not exist; it is in all its aspects merely evidence of a lack of knowledge due to Man's present imperfect stage in his imaginary progressive rise from the beast to the throne of the Universe.

Judged by the Creeds, the grievous error in the Modernist's view of "*Kenosis*" does not seem to lie in the assertion that Jesus of His own initiative "*did not know*" and "*could not act*" outside the inherent capabilities of His adopted Manhood, but, basing its logic on "*evolution*," a theory which denies to God the power to intervene in the affairs of men and nature, "*Kenosis*" inevitably led to the modern apostasy, that the recorded utterances of Jesus Christ are unreliable. "Gloze the facts as you will, Jesus remains deluded" (*Modern Churchman*, October, 1928).

* * * * *

Criticisms of the view here propounded, which are based on the wording of the Athanasian Creed, fail to realise that those portions of the Creeds which deal with the mystery of the dual natures in Jesus Christ, were addressed entirely to answer the question—"What think ye of Christ? Whose Son is He?" In short, the Creeds are concerned with Jesus Christ's *Identity*, and do not touch the central theme of this essay, viz., the degree of "veiling" of His Divine powers which His Incarnation—a true Humanity—demanded. The theory here presented, on Scriptural authority, removes any ground for an interpretation of Phil. ii, 7, which could justify the Modernist's theory of *Kenosis* and its destructive inference that "Jesus Christ remains deluded," and renders the text clear and intelligible in the face of the Creeds of Christianity.

If Jesus Christ was not the "Only-Begotten of the Father"—the "I AM" of Eternity, as He claimed to be, then by Jewish law He was justly condemned for blasphemy (Lev. xxiv, 16), and His Cross, the central point of the Christian religion, carries no more merit than the crosses of the two thieves; and Christianity, robbed of its power, ceases to live.

In the fashionable corner of the field of philosophy, comprehended in the expression "the dominance of mind over

matter," or "the subordination of the material to the spiritual," we may discern the feeble and fruitless efforts, from the purely rationalistic human standpoint, to penetrate the "terrain" of those supernatural "powers" which by His perfect communion with the Father were available *in an unlimited degree* to "the Son of Man," and given the fully developed Faith (a seemingly impossible achievement to a "Christian" world, living so short of "the measure of the stature of the fullness of Christ") might be powers at the disposal of His Church to-day.

DISCUSSION.

The CHAIRMAN (Rev. CHARLES W. COOPER) said: I wish to express the grateful thanks of the members and associates of the Institute to Mr. Henry R. Kindersley for his most valuable and helpful paper, given this afternoon. We regard it as a much-needed and very useful contribution to the cause of Evangelical truth.

It is impossible for me, in the space of time permitted, to argue in a few words the right and wrong of any opinions concerning the doctrine of *the Kenosis*, of which this paper treats. I should, however, like to express my opinion that the essence of the discussion under consideration is not a question of the true or false interpretation of the expression used by the apostle in Phil. ii, 7, "He emptied Himself."

The real question at issue is whether Bible statements in general, concerning the divine nature of our Lord's Person, are statements of absolute truth, or merely statements made by men with human limitations, unaided by divine guidance.

We regard it as a basic truth, and beyond all legitimate controversy, that the New Testament is full of statements representing Jesus Christ as truly divine, and yet perfectly human. The writer of this paper, for convenience, divides inquirers into this subject into two classes, viz., "modernists" and "creationists." Many modernists, however, declare that they cannot accept the Virgin Birth of Jesus. That this is true is proved by the book which I hold in my hand—*The Heart of Modernism*, by L. J. Dunne—which contains verbatim quotations of such and similar statements gathered from over 500 sources of publications by modernists. It is manifestly useless to argue with such men about the truth of

Bible statements, where there is no common foundation on which to build.

Our conviction is that passages of scripture which appear to contradict one another are not really contradictory but parallel truths, complementary to one another, and that those who would set one Bible statement against another thereby prove their inability rightly to interpret that which is written, for we believe that "all scripture is given by inspiration of God" (2 Tim., III, 16) and therefore cannot err. The words under discussion, "He, (Christ) emptied Himself" are a case in point.

As Dr. Hastings's Bible Dictionary rightly states, the question is "as to the extent to which the Son of God stripped Himself of His divine prerogatives." No amount of casuistry can get rid of the fact that the New Testament declares Christ to have been born of a virgin, or that He Himself claimed to have existed before Abraham, and that He raised the dead to life. It is therefore manifest that Jesus was *not* entirely stripped of divine power during His earthly ministry. To deny these facts, and the plain implications of these statements, is pure assumption, without the slightest authority.

Mr. PERCY O. RUOFF said: All attempts to compass the Person of the Son of God, by defining the limits either of His manhood or His Deity, are doomed to failure, and are open to grave objection. It would appear from the words of Christ Himself that it is impossible for any man to fathom the mystery of His Being. He said, "No man knoweth the Son but the Father."

It is difficult to understand what Mr. Kindersley means on page 42 when, referring to the "veiling," he speaks of the abeyance of His powers, whenever the retention of them would militate against the full realisation of His adopted humanity. If, for example, it is accepted that Christ walked on the water, or raised the dead, the argument of the lecturer fails, because such acts exhibit divine power. Mr. Kindersley forces an argument from the words of Christ, "faith as a grain of mustard seed," and seeks to show that it means "faith (which) has reached a growth corresponding to the great tree." The words of Christ cannot be said to carry such a meaning. There is all the difference in the world between "faith as a grain of

mustard seed" (small but living) and "faith which has reached a growth corresponding to the great tree." Mr. Kindersley cites the words "Verily, verily, I say unto you, he that believeth on Me, the works that I do shall he do also," and affirms that such powers belong to those whose faith has approached "the great tree." May not an illustration of these words be seen, for example, in the case of a preacher who declares the Gospel and the omnipresent Spirit of God uses the words spoken to turn men to God?

The description of the birth of Christ on page 47 is open to strong objection, as no human being can go beyond what is revealed about His mysterious Incarnation.

The lecturer speaks of Christ having free will to obey or disobey, and in a footnote cites the passage about prayer for the aid of angels. This does not prove the point. Such prayer, if offered, could not be construed into *disobedience*.

Mr. GEORGE BREWER said: It is not possible for finite minds to comprehend or reconcile all that is implied by the Incarnation of God the Eternal Son, omniscient and omnipotent, emptying Himself in order to become man. While His glory was definitely relinquished until He should receive it again from His Father, there is nothing in Scripture to show that His knowledge was not retained. He saw Nathaniel when under the fig tree, and knew the state of his mind (John i, 48-51) and needed not that any should testify of man, for He knew what was in man (John ii, 25). He knew the personal history of the Samaritan woman (John iv, 17-18) and from the beginning, who they were that believed not, and who should betray Him (John vi, 64).

In the four gospels there are at least 100 passages to prove that our Lord's knowledge exceeded what was humanly possible.

It is significant that in our Lord's prayer recorded in 17th chapter of John, He does not pray for a return of His knowledge or power, but for His pre-incarnate glory only, which He had laid aside in order to undertake the work of redemption.

At the same time Luke ii, 52 tells us that the child Jesus increased in wisdom and stature; and of Him who said "Lo, I come to do Thy will O God," and whose human life was one of perfect submission and obedience, Hebrews v, 8 states, "Though He were a Son, yet

learned He obedience by the things which He suffered : and being *made perfect*, He became the author of eternal salvation to them that obey Him." These passages indicate that our Lord's retention of His knowledge as God was not allowed to abrogate the necessity of acquiring knowledge and experience as man.

The omniscience of God being inherent differs not only in degree but in essence and character from human knowledge, which is acquired and retained by the intellect ; and the perfect combination of the Divine and Human in the person of our Lord, which our finite minds are unable to grasp, must be accepted with reverence. Mr. Kindersley's explanation of the " veiling " on page 42, as being " a temporary abeyance of our Lord's own divine powers, whenever the retention of them would militate against the full realisation of His adopted humanity " seems to be as far as we can safely go.

As the Author and Finisher of faith, our Lord's life on earth was perfect in communion with, and dependence upon, His Father for all His words and actions ; and even if all the implications claimed for the *Kenosis* theory be admitted, the absolute accuracy of all our Lord's utterances by reason of this perfect dependence is secured. His own testimony as recorded in John xii, 49-50 leaves no room for doubt : " For I have not spoken of Myself ; but My Father, Who sent Me, He gave Me a commandment, what I should say, and what I should speak." This covers every utterance, whether public or private, and the attempt to discredit any word of our Lord which does not fit in with modernistic theories is utterly futile. Such criticism affects not our Lord alone but God the Father, Who gave the commandment, and the Holy Spirit, Who inspired the record. Thus the Triune Godhead is attacked, our Lord's parable of the leaven hid in three measures of meal fulfilled, making the evolution of evil complete.

These adverse critics seem to overlook the exhortation in Phil. ii to emulate the humble mind of the Lord Jesus. In their case the emptying process does not appear to operate. If it did, their self-assertive wisdom might give place to that which cometh from above.

I hope that I have misunderstood on page 49, paragraph 2, of this generally excellent paper, what appears to be a defence of the Roman doctrine of priestly absolution. After stating that our Lord regarded

the power to forgive sins as a divine prerogative, only exercisable by virtue of His Godhead, it goes on to say that "after His resurrection He bestowed this wonderful gift on His disciples, as delegates through the agency of the Holy Spirit."

I do not find any such bestowal recorded, or even referred to in the New Testament; but if the apostles understood such to have been made, it is singular that there is no record of their *having used* this power, although ample evidence is afforded of their obedience to instructions which have been recorded.

The doctrine that power to forgive *sin against God* has been delegated to sinful men, has been used to establish a man-made priesthood, is subversive of the High Priesthood of our Lord, and has no warrant in the pages of the New Testament.

Mr. R. DUNCAN said: The Scriptures afford us a reasonable degree of light on the great mystery of God manifest in the flesh. The statement by St. Paul to the effect that our Lord, in becoming man, had emptied himself of His glory is not one to be stumbled at but rather to be accepted in its complete significance. There *was* this emptying, but was there not also, in due time, a refilling? The "emptied" period lasted throughout infancy, childhood, youth, and manhood until our Lord came forward to begin His public ministry. How He had borne Himself in the Father's sight during these thirty years in obscurity was testified at His baptism by the voice from heaven which said "This is My beloved son in Whom I am well pleased." Thereupon the Spirit descended on Him in bodily shape, like a dove. From that hallowed experience, as Luke tells us, Jesus went forth "full of the Holy Ghost." This, then, was the refilling. Concerning its scope Isaiah had said, centuries previously, "The spirit of the Lord shall rest upon Him, the spirit of wisdom and understanding, the Spirit of counsel and might, the Spirit of knowledge and of the fear of the Lord." With the exception of the Transfiguration, a further manifestation by the Father, was not this enduement, while entirely concordant with His humanity, adequate in all respects to everything the gospels tell us as to His words, acts and ways up to the great consummation in His sacrifice on the Cross?

We know something of what the Spirit could accomplish even

through imperfect instruments. Amongst the Corinthian converts, as we gather from St. Paul's First Epistle to them, to one was "given by the Spirit the word of wisdom, to another the word of knowledge by the same Spirit; to another faith by the same Spirit; to another the gifts of healing by the same Spirit; to another the working of miracles; to another prophecy; to another discerning of spirits; to another divers kinds of tongues; to another the interpretation of tongues. But all these worketh that one and the self-same Spirit dividing to every man severally as he will. If the Spirit could work thus in the case of vessels of inferior capacity, what could he not achieve in and through one so fully receptive and so completely dedicated as Jesus the well beloved Son!

WRITTEN COMMUNICATIONS.

Major R. B. WITHERS, D.S.O., wrote: Christians have always been of two types; those who, in practice, accept the Sacred Scriptures as the sole, complete and final revelation of God; and those who, though they may not realise it, do not thus accept them.

This paper brings the issue into sharp focus.

Quite evidently the author desires to be wholly scriptural, and he largely succeeds. Why, therefore, does he start off with something altogether outside the Word of God? Where does Scripture speak of "the two natures in the one Person of Jesus Christ"? Where does Scripture speak of the Lord Jesus as "Perfect God"? These things are found instead in creeds and other merely human writings. How can we receive them if we accept Scripture as our *sole* spiritual authority? The author's problem would not arise if unscriptural expressions were avoided.

If we have "a whole-hearted belief that the Bible not merely *contains* but IS 'the Word of God'" (p. 43), why waste time and energy interpreting the creeds? Whatever is true in them would be better stated in God's own words; and whatever is untrue in them is but fuel for fire, and helps only the enemies of our Faith.

I believe from my heart *all* that God has been pleased to reveal about His Beloved Son, the Lord Jesus Christ, in the Sacred Scriptures. What is more, I understand what He has said in them! I cannot understand the Athanasian Creed, and I doubt if anybody

really does. It is a monument of scholastic speculation, the very antithesis of a scientific compilation from the Scriptures.

The use of such man-made formulæ as the Athanasian Creed implies that God's Word is not complete and sufficient in itself; a proposition which I, at any rate, refuse to entertain for a moment.

This question of ultimate authority is vital. The choice is between the Word of God and the words of man; and if we are undecided in such a matter, how can we hope to present a united front to our assailants? I most earnestly appeal to all to face this issue.

Let us then abandon all indefensible outposts, and believe simply what God has said, neither more nor less. If we could but state our faith in God's own words, our divisions would largely disappear for sheer lack of occasion for disagreement.

Where the author of this paper forgets the creeds and confines himself to Scripture, I have little criticism to offer.

The Venerable Archdeacon W. S. MOULE, M.A., wrote: If we regard the Tabernacle as a picture of the way in which God would deign to dwell among men, we are at once struck by the figure of one Tabernacle with two parts, kept separate from one another by a veil. The one part is eloquent of Deity, the other of humanity. In the Holiest Place are figures of the divine attributes of law-giving, forgiveness, and rule over created things. In the Holy Place are exhibited a perfectly pure Body, Mind, and Spirit of Man. These two natures are seen united in one structure, but not confused. The picture is certainly in favour of the suggestion in this paper that the proper Deity of our Lord was not the support of His life in the flesh. This, though present, was not used for this end.

But it is to be remarked in the Divine Plan for the Tabernacle, that when oracles of God were sought in the Tent of Meeting, they came not from the Holy, but from the Holiest Place (Numbers vii, 89). This appears to teach us that the teachings of our Christ come out of His own divine consciousness, and not from His humanity, however perfect. Prophets say, "Thus saith the Lord"; He says, "Verily, verily, I say unto you."

The Glory in the Tabernacle was also veiled, by its covering curtains, of the same material as the Veil, from those amongst whom it dwelt. But sometimes the Glory shone forth to the people.

Is this an indication that when God would dwell among men, the present Deity, ordinarily hidden, would at times shine forth? If so, then His first sign before men, and those that followed, would be works of *His own, His present Deity* manifesting itself.

But what then of all the places where the Lord Jesus says that His works and His words are not His own, but the Father's? To this it may be answered:—

1. These did not spring from *what appeared to sight, the Man men knew*, but from what was present within, His own essential Deity; and this Deity *always is*, not of Himself, but of the Father. He is God, but always as Son of God (John v, 19).

2. Furthermore, these manifestations of Deity, which He showed in the flesh, were confined to the words and works His Father gave Him to speak and to do in the world, and so may be said to be not of Himself but of the Father.

He did not speak all He knew (John iii, 12, 13; xvi, 12), nor do all He could. But the words of teaching, and works of power which he showed were, when they occurred, manifestations of *His own proper* Deity.

It is possible that the words of the Lord Jesus that “neither the Son, but the Father only” knows the day and hour of His Coming, may be explained as its being no part of His commission to declare it. But this is not wholly satisfactory. It is the only place where our Lord confesses ignorance on any point. I prefer to leave it. It should not be used to negative what the Lord says elsewhere about the trustworthiness of all He did speak. In fact, it confirms it.

The only *Kenosis* affirmed in the Bible is that He Who before lived as God came to live as man. *How* the One Person could live in the two Natures it is not necessary for us to understand, the fact is the important thing.

May we not say that as regards His personal life as Son of Man, Jesus Christ lived on earth independently of His own divine powers, and in entire dependence on the Father; while as regards His commission to the world, whether in manifesting Himself as the Object of faith, or in His teaching, He spoke and acted with full use of those divine powers?

In this view the miraculous powers were not exerted by the Lord as part of His normal human life, and in consequence of the perfect

harmony of His human spirit with God, but by His own volition, to show Who He really was. If it were by consequence of His unbroken fellowship as perfect Man with the Father that His works of power were done, would they not have appeared before He was 30 years old?

At the grave of Lazarus He might show that His working was always with and from the Father, for the sake of those who stood by, that they might believe that God sent Him, yet it was His own will and divine power that called Lazarus from the tomb.

Our Lord's asking for information on several occasions may indicate that in His own human life and actions His Divine knowledge was not used. But similar questions were put by Him after His resurrection, and in the O.T. are found in the mouth of God. And sometimes, as in the direction to the Samaritan woman, and the question to Philip, there was no ignorance. The definitions of Dean Liddon and Dr. Moule on this point, quoted in this paper, seem true and satisfying. It is all we need to know, though we may reverently ponder the mystery of God manifest in the flesh. It is significant that there is no recorded word of authoritative teaching until the Lord had begun to manifest His glory.

The relation of human faith to the operations of divine power is a very important question.

If the view taken in these comments of our Lord's working is correct, He did His works, not because of His perfect faith, but in the line of His commission, and as evidence of powers resident in His own Person. There is nothing corresponding to this in us.

When He says, "these signs shall follow those who believe," He is declaring His intention, among the gifts to His Church, to give these gifts to whom He will. Do all work miracles?

When He says, "the works that I do shall he do also, and greater works . . ." He means, I think, on a greater scale, over a wider range than it was His mission to do. "Faith like a grain of mustard seed" may perhaps mean, as is suggested, *growing* faith. Jesus Christ does honour faith, and faith does grow by use; Paul's word is also to be remarked. Yet, on the whole, according to the Scriptures, faith, however great, works miracles, not necessarily, but of *God's will*. The highest faith will always acknowledge this. There is an essential difference between our mission in life and that of the

Lord Jesus. (1) He knew all the Father sent Him to do, and we do not, so that for God's work in our hands we must still say, *if God will*. (2) His mission to do and teach was fulfilled by His own divine knowledge and power, in the unity of the Divine Being.

A second picture of the Person of the One Mediator is given by the garment of the High Priest, and the two pictures agree. He has the blue inner robe, indicative of Deity, and upon it the Ephod (of the same construction as the Veil and Curtain of the Tabernacle) of His Flesh. *Attached* to the robe is the memorial of His Flesh (the fringe of Tabernacle materials and colours); and *hidden in* the Ephod is the memorial of His Deity (the Urim and Thummim, the Lights and Perfections).

The Lights and Perfections are brought out when the High Priest speaks, and such are all the teachings of Jesus.

LECTURER'S REPLY.

Verbal Discussion.

Rev. Charles W. Cooper. His quotation from Dr. Hasting's Bible Dictionary seems to endorse the underlined hypothesis set in the early part of the read paper, which limits the "veiling" to a temporary abeyance of Christ's powers, wherever the retention of His own divine powers would militate against the full realisation of His adopted Humanity—the power to forgive sins supplies an obvious exception.

Mr. Percy Ruoff. If all attempts to "compass" to some extent the Person of the Son of God "are doomed to failure," what meaning can be assigned to considerable portions of the Bible, Old and New Testaments alike, which deal with His Identity and His powers, to some of which the principle paper has ventured to point? These were "written for our learning."

Christ's prayer for help from legions of angels to save Him from the Cross (had it ever been made), says Mr. Ruoff, could not be construed into *disobedience*. No, but it shows that His will was free to make such prayer which He said if made would be answered, though obviously avoiding the known purpose of God. It would have been a failure of the gravest magnitude. The miracles which he cites find their counterpart in those performed by Moses, Elijah, Elisha

and others, even to raising the dead. These differ perhaps only in degree and not in kind. But these men never ventured to forgive sins of their own initiative !

Mr. George Brewer. The same reply applies to his comments as to those of Mr. Ruoff. All the instances which he cites of Christ's supernatural knowledge are capable of falling within the category of inducted knowledge and power. "He saw Nathaniel under the fig tree"—Elisha saw that Naaman "turned again from his chariot" to meet Gehazi. Mr. Brewer need have no fear that any words of the paper countenance the false doctrines of Rome : he breathed on all of them.

Mr. Duncan. While allowing that the "veiling" was in force in His childhood, suggests that after His Baptism there was a "refilling" ; does he mean a complete "refilling" ? Is this idea consonant with His prayers, His agony, His want of knowledge why His Father should have forsaken Him ?

Written Discussion.

Major R. B. Withers. Thinks that all Creeds are erroneous and a mistake. Many share his doubts about the Creed of St. Athanasius. But just to test the truth of his general view of Creeds, will Major Withers take one by one the affirmations of the simple Apostles' and Nicene Creeds, and apply to each a direct negative ? From the earliest records of "Man" in Genesis a simple Creed or expressed Faith was found necessary (Faith in God—what are His attributes, and how does He stand in relation to "Man"). The Old Testament writings teem with such. They become more necessary, if somewhat more complex, for the early Fathers after our Lord's Resurrection. It is to meet the modernist denials of such expressions of Faith that this paper was written.

Ven. Archdeacon W. S. Moule. The Archdeacon bases much of his comments on lessons to be drawn from the wonderful Tabernacle ordinances, in so much of their detail prefiguring the Personality of our Lord. There the Deity at times shone forth. From this the Archdeacon argues that our Lord's essential attributes of Deity, for the most part veiled, were occasionally manifested in His life on earth. This exhibition of His own glory, is not precluded by

the wording of the paper, which expressly suggests that the "veiling" was limited to His purposive experience of a human life. His sinlessness and His Personality speaking with authority, always shone forth, as also from time to time did His mercy in openly pronouncing forgiveness of sin. His terrible judgments also on the Pharisees and Jerusalem were no less an exhibition of power inherent in His Godhead. These do not militate against His experience of a human life. The Archdeacon considers that our Lord received before Incarnation a detailed commission what he was to say and do. There are words in the Gospels which do not seem to bear this out, *e.g.*, "As I hear [present tense] I judge"—"I thank thee Father that thou has heard Me"—"For the Father loveth the Son and sheweth Him [present tense] all things that Himself doeth [present tense]; and He *will show* Him greater works." It would make our Lord's prayer for escape ("if it be possible") from the terror of the Cross, an unreality.

The suggestion that Christ's own "essential" powers were always available in Him, but were not used, leaves unanswered the question of this paper, *viz.*, "how can anyone know all things, and at the same time not know them?" Again, is the statement quite correct that our Lord's denial that The Son knew the day and hour of His second coming, was the *only recorded instance* of His suggested want of knowledge? On the cross He did not know why His Father had forsaken Him! The Archdeacon also leaves untouched the profound question of how, if knowledge was not "veiled" in him, His baby life can be explained otherwise than as a deception! Likewise, how are we to explain His growing in wisdom and stature. His earthly education would be a pretence! These comments are made with all due deference to the Archdeacon's great authority.

* * * *

Now what is the real difference between those who disagree in their understanding of this sacred and very important subject? Some are apprehensive lest the stressing of His true Humanity should compromise His Deity. Others adopting the view taken in this paper feel relieved of any such fears. Of what does the, we won't say *Kenosis* which implicates a modern heresy,

but of what does the "heauton ekenose" of Phillipians (translated "Emptied Himself") deprive Our Lord? Not His Identity, and therefore not His place in the Deity.

Both sides agree that he was possessed of infallibility. Both agree that he had *available* unlimited knowledge and power. The only difference is that we disagree as to whether these attributes "in the days of His flesh" were *inherent faculties* or *inducted facilities*. Some may think that this is hair-splitting, but indeed it is vital. If these Powers were "inherent" "in His Incarnate State," they seem to make His human life an unreality: just as much as if, being God, He had not submitted for the period of His Incarnation, to hunger, thirst, pain, weariness and tears, none of which can be contemplated as pertaining to His Godhead. But if these powers were to an unlimited extent "inducted" as required for the accomplishing of His Mission (as they were to the Prophets of old) then truly, though God, He lived a *perfect Man* and One who "was in all points tempted like as we are," yet untroubled by a tainted heredity, and "without sin."

His works were proof, as the People said, that He came from God, and was always living in close communion with Him—that is why they said that He was one of the Prophets. But the revelation of Himself through the Father could not stand there. The supreme vitalizing fact for Himself and humanity lay in the answer to His insistent question made to the Pharisees as well as to His Disciples—"Whose Son is He?"—"Who do ye say that I am?" In the true answer to this question rests enshrined the *whole Christian Faith*, as enunciated in the Apostles' Creed, and in its acknowledgment stands alone the title of anyone to call himself a Christian.

Modernists to-day say that the "basic question" for the world is "What think ye of Christ?" They stop there, though purporting to quote Him. (This is not said at random.) That was not His question, but only the introduction to it. Christ seemingly was not so anxious to elicit from His audiences what estimate men held of His character (the majority of men, then as now, think well of Him as a Prophet and Teacher, and as the ideal "Man"), but correlating Genesis with the *facts* of the Gospels, Jesus Christ made *His Identity the supreme concern of Faith*—"For when the fullness of

time was come God sent forth HIS SON, *made of a woman* " Gal. iv, 4.

Finally, all men must acknowledge that He submitted Himself to hunger, thirst, weariness, tears *and even death*. No one will say that such experiences are inherent in the Deity : or that the reverse of each of these is not "*essential*" to God Almighty. Therefore in His Incarnation Christ's "*essential*" freedom from these traits of imperfection was most obviously put in abeyance.

Is the right to life less "*essential*" to the Godhead than the attributes of "*omniscience*" and "*omnipotence*" ? On the contrary, they are clearly dependent on God's Eternal Life.

805TH ORDINARY GENERAL MEETING.

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, FEBRUARY 8TH, 1937,
AT 4.30 P.M.

W. N. DELEIVINGNE, ESQ., IN THE CHAIR.

The Minutes of the previous Meeting were read, confirmed and signed, and the Hon. SECRETARY announced the election of Miss A. G. Jacob as an Associate.

The CHAIRMAN then called on Mr. G. H. Langley, I.E.S. (ret.), to read his paper entitled "The Relation of Change to the Eternal."

CHANGE AND THE ETERNAL.

By G. H. LANGLEY, ESQ., I.E.S. (ret.),
late Vice-Chancellor of the Dacca University.

MANY of the leading thinkers and schools of thinkers who have contributed most to the formation of men's views of the universe in modern times have emphasised the reality of change and becoming. In describing what appears to them the fundamental character of the universe, they have found such concepts as "evolution" and "duration" most applicable. The tendency is intelligible, for it is the result of the advance of science and of the growing social and political consciousness of the people, both of which increase men's interest in the actual world and in human experience. On the other hand, many of the greatest thinkers both in the East and in the West, and especially deeply religious minds, have been led to the conclusion that what is ultimately Real is eternal. Many of them hold that progress in the apprehension of Reality is largely a process of lifting the mind from the experience and contemplation of the *temporal* to the *eternal*. In what follows I propose to discuss the problem of the relation between *change* and the *eternal* which arises out of these two tendencies in thinking. The method of inquiry will be empirical and I shall endeavour to indicate the relation as it is present in each grade of existing

entities and organisms, beginning with the most simple constituents of the physical world known to men of science.

I.

First then let us ask what the elementary constituents of matter signify in regard to the relation between the *eternal* and *change*? I do not intend to speculate on the precise nature of ultimate physical entities, nor am I competent to do so. It will suffice to draw attention to certain features of their characters and mutual influences. Not many years since, physicists regarded the ultimate constituents of matter as hard, impenetrable, unchanging particles, which they called atoms; but in recent years they have abandoned such conceptions and tell us that there is nothing fixed and unchanging in the ultimate entities which constitute the physical world. Atoms, which for centuries were regarded as simple, have been disintegrated, and they are now known to be systems of positive and negative electric forces—called protons and electrons—which retain their relations because of mutual influences. Under certain conditions individual atoms are affected by external forces in such manner as to make them release some of their stored up energy and they send it forth in radiation, such as the radiation of light which comes to us from the sun. Radiation travels at enormous speeds, and here also there appears to be an entire absence of fixity. According to present knowledge, the ultimate constituents of the physical world are the protons and electrons, together with certain neutral forces called neutrons, and the radiations which under certain circumstances they emit. What, then, does this knowledge signify in regard to the relations with which we are concerned? Both types of constituent at first sight appear to show that the ultimate character of the physical world is change and becoming, and can no longer be correctly represented as fixity and permanence. This character seems to be much more accurately described by concepts such as force and energy than by any atomic conception of matter. Despite this, however, reflection shows that permanence, which was formerly associated with the atoms, still persists in the laws which govern the changes of their constituents; and that such laws are connected with the forms that characterise these changes. Let me emphasise the importance of what I have described as “forms that characterise the changes” by reference to the atom of hydrogen, which is the simplest known, and

to radiation. We are told that an atom of hydrogen consists of a single proton with its positive charge of electricity known as the nucleus, and a single electron negatively charged revolving round it in a manner similar to that in which the earth revolves round the sun. Now scientists tell us that the electron of any hydrogen atom can revolve in one of many orbits which may be at varying although determinate distances from its nucleus. Further they say that the atom is a reservoir of stored up energy and that the amount of energy it contains depends upon the dimension of the orbit of its electron. A similar fact is true concerning radiation. Here the amount, or more accurately the *quantum*, of energy possessed by any form of radiation is dependent upon its frequency, that is, the number of vibrations per second; and the number of vibrations is dependent upon the length of the waves. The greater the wave-length of any radiation the less the frequency, and therefore the less the energy transmitted; whereas the smaller the wave-length the greater the frequency, and therefore the greater the energy transmitted. Hence the importance of the forms which persist throughout the changes of the simplest constituents of the physical world. Such forms govern the behaviour of these constituents and determine the kind of influence they impart.

A further point in regard to the forms observed in nature is of great importance. It is the fact that the forms which govern the transmission of force or energy are pervasive of the physical universe as a whole. The movements and changes in physical entities in which the forms are manifest take place obviously in particular spaces and particular times, but the forms themselves and the laws which they imply cannot be said to belong to any space or to any time. Natural laws operate wherever and whenever the necessary conditions exist. This truth is impressed upon us very forcibly by the inquiries of modern astro-physics. This science is founded on the assumption that the atoms and molecules in the most remote of the heavenly bodies behave in a manner which is analogous to that in which the atoms and molecules behave when observed by a physicist in his laboratory.* If this were not the case, the astronomer would not be able to interpret the lines on his spectroscope made by the light of

* Sir Arthur Eddington tells us there is an exact analogy between the wave equation of an electron and the equations which explain the action of the remote spiral nebulae.

distant stars. What, then, is the significance of this fact? The most distant of the heavenly bodies are hundreds of thousands of light years from the earth, and light travels at the rate of 186,000 miles a second. Now the forms and laws to which we have been referring belong to constituents of the universe so minute that even if they were hundreds of times their present size they would still remain invisible with the aid of the most powerful microscope. They interpenetrate a kind of material underworld within the world of sense perception. At the same time they are so universal that they have operated and continue to operate in universes incredible distances from our earth and existing incredible ages before the birth of man.

Let us then endeavour to picture the essential characters of the physical world relevant to this argument. It is a world in which there are no unchanging entities. Its constituents are centres for the transmission of energy and are all forms of motion. Every constituent is spatially and temporally determined and all its changes belong to particular space-times. It is surrounded by innumerable other constituents that are similar to it in regard to these essential features, and is the recipient of direct influences from the constituents in its neighbourhood, besides being indirectly affected by other influences from more distant constituents. Under such influences any constituent may change into a different kind of constituent; it may conserve its form despite movement, or it may even be destroyed. In any case, however, whatever changes take place will be in accordance with law, and the law operating will be related to the form of the constituent in question and will manifest a pervasive power of the universe as a whole. Should we wish to represent from the visible world the movements of these invisible constituents, we can find no better analogy than the great system of the heavenly bodies. Let the earth with the moon revolving about it represent an atom of hydrogen, the electron being held in position by the proton somewhat in the same manner as the earth keeps the moon in its orbit by the force of gravitation. Now the earth is related to the sun and the other bodies of the solar system. They are separated by great distances in space, but they are kept in their various positions by the forces which they mutually exert. Beyond the solar system are the stars, many of them possibly being solar systems like our own. They are at immense distances from us and are themselves separated by immense

distances. Yet they radiate influences to our sun and earth to which changes here are due. The sun and the bodies of its system may be taken to represent the neighbouring constituents to our atom, and the stars others that are more distant; the bits of apparently solid matter we see dissolve before scientific investigation into systems of moving entities separated from each other by intervening spaces but exercising mutual influences. All is change; but the laws of movement and change, for the invisible constituents as for the vast bodies in the heavens, belong to all time and to all space expressing pervasive powers of the universe as a whole.

To sum up, it seems to me clear that the constituents of the physical world are forces or movements, or systems of forces or movements, that are uniquely determined by space-time, and by their mutual influences are ever effecting changes that are so determined. I use the term space-time rather than the separate terms space and time, since the spatial and temporal determinations of any moving object are interdependent; just as the space of an express train which leaves London for the north, say at 10 p.m., will depend upon the time—11 or 11.30 p.m. as the case may be—at which the particular space will be occupied. Despite their perpetual change, however, all these uniquely determined spatio-temporal processes are manifestations of powers which in their operations are pervasive of the immensity of space and of time, and which for this reason belong to no particular space-time. So far I have not used the word *eternal* in respect to these pervasive powers and forms; but it seems to me that they are of the kind to which we usually attribute this term, and that when we inquire into the ultimate structure of the physical world we have a vision of the *eternal* carrying on its characteristic function of creating, conserving and changing the beings of time.

II.

Having endeavoured to understand the relation between change and the eternal in the ultimate constituents of the physical universe, let us examine the relation as it is manifest in the more complex and higher forms of being. We will next consider the problem as it concerns living organisms. An organism differs from the entities we have been contemplating in that: first, its form is much more complex although, despite its complexity, it

functions as a whole; and secondly, this form embodies a principle of development. As regards complexity, it is clear that the form of an organism is a complex pattern which includes many subordinate forms and groups of forms. All the members of an organism have definite forms; and, within the members, there are other groups or societies of forms such as the living cells. Further, below the living cells are the chemical and physical constituents with their characteristic forms; and within these constituents are the innumerable invisible molecules and atoms which we have been attempting to describe. Thus an organism is an exceedingly complex form including a whole hierarchy of subordinate forms. Nevertheless, despite this well-nigh inexhaustible complexity, the organism functions as a whole and the activities of its innumerable parts are entirely subordinated in the unity of its functioning. In the second place, the form of an organism develops. There is continuity between the embryo, the infant, and the man. It is clear that there is inherent in the form of the rudimentary organism a principle of development whereby it utilises influences which it receives for the evolving of its characteristic unity. The latter is potential in the embryo and is fully revealed only in complete development.

Now what significance has this structure of living organisms for the problem with which we are concerned? There may be those who would tell us that we should not look to living organisms for anything new concerning the powers that pervade the universe as a whole, since life has appeared—comparatively speaking—only recently, and then only in a tiny part of the universe—so tiny, indeed, that it may be regarded as a speck of dust in regions which extend for hundreds of miles. It may be that scientists are right when they tell us that life first appeared on the earth a few million years ago, and that a few million years is a very brief span in the history of the physical universe. Be this, however, as it may, the nature of life is such that it is very significant of the character of the fundamental powers of the universe; and, despite the limitations of its distribution in space and existence in time, it does connect with the forces operating throughout the entire universe. It is obvious that we must think of living organisms as related to their environments in a manner analogous to that in which we conceived ultimate physical entities as belonging to theirs. Living organisms, like these entities, are continually receiving influences from the

environment ; such influences coming from physical entities like the sun, the air, the earth, and the innumerable minute entities they contain ; as well as from other organisms in the neighbourhood. These influences are used by organisms for the maintenance and development of their forms. Changes in living organisms, like changes in physical entities, are determinate spatio-temporal processes ; but, again like physical entities, they embody principles that are not limited in their operation to any space or any time. In so far as these principles are peculiar to living organisms, there is a sense in which they operate only where such organisms exist ; but they are truly universal since they always operate wherever and whenever the appropriate conditions are present. Further, they connect with powers pervasive of the entire physical universe : for, as we have already indicated, organisms are able to utilise influences from physical entities for the conservation and development of their forms. Thus living organisms present us with instances of unities or wholes which are, as it were, capable of receiving universal powers pervasive of the physical universe and using them for the fulfilment of ends immanent within themselves.

III.

In what has preceded I have attempted to show that our knowledge of various types of being reveal a relation between pervasive powers of the universe which must be regarded as eternal and changing entities and organisms that are determined by particular space-times. I now wish to draw attention to another most significant fact. When the higher forms of being emerge and become aware of the nature of influences which they receive from entities and organisms, they acquire the power of co-operating with eternal powers pervading the universe by directing the modes of their operation towards ends which they themselves seek. In endeavouring to make this clear, I will again make use of the simplest possible illustration, and will refer to certain observations in regard to the behaviour of young animals by Professor Lloyd Morgan.

Imagine a number of chicks immediately after they have emerged from their shells placed in an enclosure covered with tiny objects—some of which are edible and some not edible. Among such objects may be included pieces of bread, small

stones and distasteful insects. At first the chicks peck indiscriminately at all the small objects, but their reactions to the various kinds of objects will be very diverse. Pieces of bread will be consumed with apparent zest, but tiny stones will be rejected after they have been taken into the mouth, and the small insects will be rejected with obvious disgust. If, however, the chicks are repeatedly placed in similar circumstances, it will not be long before decided changes take place in their characteristic behaviour. They will begin to discriminate at sight between the various small objects presented. Pieces of bread will still be pecked at with apparent zest, but small stones will be rejected at sight unless they are very like pieces of bread, and there will be obvious revulsion at sight from the small insects. What, then, is the significance of the change that has taken place? For it is evident that repetition of the conditions has resulted in a radical change of characteristic behaviour. Before repetition certain visual sensations were followed by instinctive and natural responses, such as the pecking at the small objects taken into the mouth; and the bodily and tactile sensations consequent on this instinctive behaviour were in their turn followed by instinctive and natural responses, such as the consumption or the rejection of the small objects so taken. But after repetition similar visual stimuli lead to responses of a different order, and this change in kind is possible only in virtue of the repetition. The responses to visual stimuli after repetition are such as are appropriate to the corresponding tactile and bodily sensations, but they occur without the intervention of such sensations. A new route has been effected between the initial visual stimuli and the appropriate final responses, which is a more direct approach to ends instinctively sought in that it dispenses with mediation by intermediate bodily sensations. The explanation of this radical change is found in the fact that repetition of visual stimuli and of the natural responses thereto originates what has been described as *foretastes* of the bodily sensations which would result from instinctive responses, before these instinctive responses take place. Such foretastes are a kind of memory, but they differ from memory proper in that they come into operation only in the presence of visual stimuli similar to those from which they originate. The function which these foretastes of bodily sensations performs is analogous to that which is performed by the actual sensations, and thus the appropriate final responses take

place in the absence of the mediating bodily sensations. A further fact is important. These fundamental changes in characteristic behaviour are controlled throughout by the forms of the recipient organisms. The tendency is to repeat responses which are of such a kind that they satisfy some need of the organism, and to eliminate responses which frustrate the satisfaction of such needs.

Let me emphasise the feature of this phenomenon which is most significant for the purpose of this discussion. With the occurrence of this radical change, living organisms are beginning, instinctively and unconsciously, to direct the operations of pervasive powers of nature and to use these for satisfying ends which they seek. This becomes possible because the foretaste of bodily effects is the foretaste of a universal, since these effects are of a kind which must happen under similar circumstances whenever and wherever they may occur. It is, of course, merely a vague feeling of universal significance and does not include any discriminating analysis of content; nevertheless, it refers to that which is universal and not to what is particular. Foretaste is only possible after repetition, and is an instinctive experience of what is later recognised as the working of natural law. Further, it is apparent that by this kind of behaviour the living organism prevents changes within itself resulting from the operation of universal powers which would lead to its dissatisfaction, and fosters the operation within itself of other universal powers which lead to its satisfaction, and possibly also to its development. Thus in small measure, and restricted by the operation of innumerable universal powers present in the environment and entirely beyond its control, the little chick, by determining its reactions to certain temporal entities, decides whether certain non-temporal forces are to operate within itself. Later it may become apparent that the value of a living being is dependent upon the measure in which it is able to co-operate with the Eternal and to participate in the direction of its operations in creating new temporal experience.

IV.

We have seen that the behaviour of various types of determinate and particular spatio-temporal processes manifest the operations of forces that are not limited to any space, but are pervasive

of the whole universe. Further, we have seen the emergence in living organisms of an instinctive awareness of the nature of objects in the environment, which enables such beings to co-operate, as it were, with the pervasive forces of the Universe and to use these for the attainment of ends which they seek. I now wish to maintain that the appearance and perfecting of such powers in living beings culminates in the creation of persons who are not merely subordinated in their behaviour to the great powers of the Universe without them, but are raised to the great position of being permitted to co-operate with these powers in their work of creating events in time. By their co-operation with eternal powers persons are able continually, again under limitations imposed by their environments and it may be in small measure, to increase the richness of their experience and of the experience of other persons by determining the manner in which universal forces shall operate in the situations with which they are confronted. The extent and significance of this great faculty is clearly manifest only in rational beings endowed with the power of appreciating values, and we are therefore led by the inquiry to a consideration of the functions of reason and of appreciation.

What, then, is reason? It may be described as the power of apprehending those universal characters or forces referred to above which are operating throughout the existing Universe, and of establishing such relations with them that their efficacy can be used for the attainment of appreciated ends. It is important to remember that the interest of persons, or rational beings, in the pervasive forces of nature is primarily practical, for they are concerned with them not merely as abstract laws but as forces producing change. There is, in fact, no sense in which these laws can be said to exist apart from their operations in changing temporal events, any more than there is a sense in which a person can exist apart from his characteristic behaviour. It may be, however, that when I describe the characteristic activity of rational beings as apprehension of forces pervading the universe and the establishing of such relations as ensure that these operate for the fulfilling of ends which they appreciate, many will feel I am stating a merely speculative principle which has little reference to experience. But this is not the case. On the other hand, I am endeavouring to explain a fact of ordinary experience, and will illustrate my meaning by a simple example.

Consider the usual procedure of, say, a municipality which is anxious to improve the health of its people by providing them with a more satisfactory water supply. It is probable that they would requisition the assistance of experts who have studied the relevant problems and therefore possess scientific knowledge of the conditions necessary for obtaining such a supply. Such experts would presumably have insight into the universal laws which operate, and would therefore be able to suggest to municipal councillors measures for effecting the necessary improvement. Now what are the characters of this process which are vital for the purpose of the illustration? Experts suggest and administrators effect certain changes in existing conditions which they can control, and their action throughout is guided by knowledge of certain universal principles operating in these conditions. Further, they make these changes for the purpose of achieving certain ends which they have accepted since these make for the welfare of people under their care. If they succeed, and there is no reason why they should not, it will be because certain universal forces over which they have no control begin to operate through the new conditions they have made in such a way as to result in the fulfilment of ends which they seek. The illustration could have been chosen from any sphere of human activity, for the same principles apply whenever man makes a reasonable endeavour to solve any of his problems.

I have used the term *reason* to describe man's power of apprehending universal principles rather than the term *intelligence*. The latter is commonly applied to the power of analysing precisely observed changes and of making exact statements of the principles involved. Such analysis and precision are in a measure possible in regard to the more ultimate constituents of inanimate nature, but they are not always possible in dealing with the behaviour and relations of higher forms of being. We have seen how a young animal may be guided in its reactions to its environment by crude unanalysed foretastes of the operations of principles that are universal. In like manner man is often guided by what are frequently described as common-sense principles, which are crude and unanalysed *fore-experiences*. He may also be guided by insight into the nature of things that comes from a finely tuned moral and spiritual nature. Such insight is apprehension of the universally pervasive powers of the universe; and it may be not only unanalysed but also un-

analysable by any human powers, since the relations with which it is concerned are more complex than can be analysed by the human mind.

This leads to another point of importance. I have attempted to show that the facts with which we are dealing are facts of ordinary experience. While this is true, I would like to add that they are also deeply significant facts. From their very nature they compel men, at any rate such as are sensitive, to feel their mystic union with powers that belong to all space and to all time. Despite the fact that man's activities are limited to his minute sphere in space-time, and that this is as it were a speck of dust in an immense universe, he is humbly conscious of his relation with universally pervasive eternal forces which create events in time and of the high power with which he has been entrusted of co-operating in their beneficent operations.

Before closing this section, I would like to add a further reference to the appreciation of values. It will be evident from what has been said that the manner in which any human being fulfils his function of co-operating with the operations of universal powers will depend upon the values which he appreciates. Obviously, he will not seek to make that possible which he does not think worth while. It is therefore important not only that man has learned to apprehend but that, with the power of apprehension, he has also acquired the power of appreciation. Now there is one feature of appreciation upon which it is necessary to lay some stress. It is that appreciation leads to ideals, and ideals are the guiding principles of man's life. What, then, are ideals? They are conceptions of ways in which universal forces might operate to create better human experience and a better environment, but in which such forces are not operating at the present time. In appreciating values also, man is interested in these as expressed in experience and not as merely abstract principles. The objects of his appreciation are not justice and kindness in the abstract, but just and kind men and women. So his ideals have regard not to forces that pervade the universe merely as universal, but to these forces as functioning in creating richer and more satisfying forms of experience. Now since ideals must represent types of experience that are not actual, the question may arise as to whether a man is wise in permitting them to regulate his striving. In doing so is he not pursuing what is illusory? I think not, and the question has not so much meaning

as appears. For every man who possesses an ideal is impelled to pursue it. He must follow, although conflicting motives often interfere with his pursuit. But I hold that the ideals which men conceive and which they must take as guides to action are not illusory. It is true that what they represent does not at present exist. It is true, also, that it may never be found to exist in the form in which it is conceived. For, after all, we conceive our ideals dimly, and they are being continually transformed in the course of our pursuit. Nevertheless, ideals emerge from the appreciation of experience, and they make demands as to what experience should be. I am perfectly aware that it is not possible to prove that what should be, exists; but this can be accepted as an article of faith, and I for one accept it. Nor is this kind of procedure abnormal. All scientific inquirers are obliged to assume that nature is uniform and this assumption is a venture of faith. We can have no evidence that nature is entirely uniform and it cannot be proved, but the belief regulates thinking and scientists and others accept it. In like manner we may be convinced of the reality of the ideal. We may believe that the ideal springs from the universe and that the resources of the universe can support it, in the sense that they can bring it to pass. This, I take it, is the demand made by religion, as spiritual experience. For the spiritually minded the ideal exists in God, and he has faith in the possibility of its ultimate attainment not as the fruit of his own effort but as the result of a movement in which God is working through him.

V.

In conclusion, I will endeavour to state briefly the results of this argument and to indicate its significance. I am conscious that it is most hazardous to suggest applications of an argument so general, but I will make the venture.

In the first place it is clear that all knowledge of the eternal or pervasive powers of the universe is derived from acquaintance with temporal (or rather spatio-temporal) experience and events. All space-time experience, rightly understood, is a drama revealing the functioning of the Eternal. Changes in the most simple of physical entities manifest the operations of natural laws, living organisms utilise these operations for the development of their characteristic forms, and conscious beings begin to co-operate

with the operations of eternal powers by creating conditions in which these contribute to the fulfilment of ends which they seek. Such capacity of co-operation increases with the development of reason and the power of appreciation, and persons possessing these powers seek to direct the operations of eternal forces into channels which lead to the attainment of their ideals. It appears to me that both the universal forces and the ideals reside in the Supreme Reality, and that the high calling of man is that he is permitted to co-operate with this Reality in its function of creating richer and more satisfying temporal experience. Should one inquire why the Supreme Reality does not carry on this great function apart from the co-operation of finite persons, I should be unable to give any reply; save to suggest that an order of this kind may be necessary for the creation of the most perfect type of finite spiritual beings.

Secondly, it will appear that this way of viewing the relation between the Eternal and the Temporal is contrary to all those modes of thinking that fail in recognition of what may be described as the *status* of the temporal. Many great thinkers, both in the East and in the West, have held that the eternal and spiritual transcends the temporal in such manner that the only path to attaining the eternal is that which leads to retirement from the temporal. But if, as has been maintained, the function of the Eternal is to create, conserve and enrich the temporal, human beings are likely to attain it by entering upon their high calling of co-operating in this great work of regeneration in time.

Thirdly, the view put forward is incompatible with the theory that there is absolute distinction between the *material* and the *spiritual*. It has been shown that the changes and influences of the simplest known physical constituents reveal the operations of powers pervasive of the whole universe. These changes may be described as physical; but, in view of the fact that universal powers are immanent within them, it appears to me that they are very akin to what is spiritual. And certainly when human beings, by apprehension and appreciation, direct the operation of universal powers towards ends which they conceive as of value, their acts are spiritual. When, for instance, a physician uses knowledge of the human body and of micro-organisms with the purpose of eradicating disease, his acts are spiritual; and such acts are identical in kind with those which make up the experience of ordinary men and women. I am aware that there are

other ends which the spiritually minded seek and of the supreme importance of these ends. They seek the presence of God ; yet the God whom they seek is one with Him who is the source of the forces and ideals which men know and appreciate.

Finally, it seems to me that this view of the relation between the Eternal and the Temporal gives reason for confidence and trust. Frequently it appears that the problems with which men are confronted at the present time are so complex and difficult that any resources which they possess are inadequate for their solution. It may therefore be ground for hope to know that in dealing with these problems men have not to depend on their own resources, but that, on the other hand, it is their function to use what knowledge they possess for bringing about conditions in which forces residing in the universe and in God can carry on their work. They will fail in this function unless they are prepared to face fearlessly discomforting facts ; for it often happens that, through ignorance and the misdirection of human purpose, powers which might promote man's welfare are working for his destruction. But if men are prepared to confront difficulties with truthfulness and to follow such guidance as is given them, there is no reason for assuming that there is any inadequacy in the eternal resources upon which the solution of their problems must ultimately depend.

DISCUSSION.

The CHAIRMAN's remarks : I am sure you will all join with me in thanking our lecturer to-day for his able and interesting paper. The subject is one that lies somewhat off the beaten track of our discussions ; but it is refreshing and stimulating to have our thoughts led to the consideration of a subject that belongs to the domain of philosophy.

In the opening paragraph of his paper the lecturer remarks that many of the greatest thinkers have been led to the conclusion that " what is ultimately real is eternal." Does this mean " ultimately real in the physical realm or in the absolute sense " ? The lecturer observes that " both types of constituent " (pistons and electrons) " at first sight appear to show that the ultimate character of the physical world is change and becoming," and that " this character

seems to be much more accurately described by concepts such as force and energy than by any atomic conception of matter. He then discusses "the forms that characterize the changes" and observes that the forms which govern the transmission of force or energy are pervasive of the physical universe as a whole. His final conclusion is that the constituents of the physical world are forces or movements, or systems of forces or movements, that are uniquely determined by space-time, and by their mutual influences are ever effecting changes that are so determined; and he argues that, despite their perpetual change, all these uniquely determined spatio-temporal processes are manifestations of powers which in their operations are pervasive of the immensity of space and time, and which for this reason belong to no particular space-time. But this argument, I venture to think, does not, and cannot carry us beyond the limits of space and time. However vast and pervasive the powers may be, it cannot be assumed that they are of infinite and unending duration. Take the solar system, for instance: science tells us it has continued in its present form for thousands of years, but that, nevertheless, it is gradually running down, like a clock, and that in process of time it will cease to function. If that is so, it would be a fundamental error to describe the solar system as "eternal." The lecturer has perceived this difficulty, for at the close of the first section of his paper he makes the following observations: "So far I have not used the word eternal in respect to these pervasive powers and forms; but it seems to me that they are of the kind to which we usually attribute this term, and that when we inquire into the ultimate structure of the physical world, we have a vision of the 'eternal' carrying on its characteristic function of creating, conserving, and changing the beings of time." This, I venture to think, is "begging the question." If we agree to use the word "eternal" in respect of any process or movement to which the mind and knowledge of man can assign no limit, well and good. But that is not the usual acceptation of the word, nor is it the meaning that is attributed to it in the Scriptures. "The Eternal God" is the God Who has neither Beginning nor End; and if the word "eternal" has this meaning assigned to it, we cannot predicate of anything in the physical universe that it is "eternal." We have no grounds, I think, for saying that the

physical laws which govern the universe are eternal, or that the purely physical has in it the germ of the spiritual and eternal.

The lecturer has remarked (p. 7) that "there is, in fact, no sense in which these laws" (i.e., the laws governing movements and operations in the physical universe) "can be said to exist apart from their operations in changing temporal events," and it is clear, therefore, that we cannot argue from the *apparent* permanence of the laws affecting change in the universe around us to its eternal duration.

The chief defect of the paper, I would urge, is that it has ignored the effect of sin in the world around us and the remedy that God has provided for sin. The universe that God made was perfect, but sin came in and brought death in its train, and only by the indwelling of the Holy Spirit can man be delivered from the power of death and made a new creature.

The Revd. ARTHUR W. PAYNE said: I wish to thank the writer of the paper for his thoughtful and suggestive messages on "Change and the Eternal." The last speaker linked the Creator and Redeemer in his discussion of the relation between this topic and the Scriptures. "I am Jehovah, I change not" is such a passage paralleled in the New Testament by the familiar words, "Jesus Christ the same yesterday, and to-day and forever." Such statements, which abound in the Bible, seem to furnish a solution for the problem under examination. They speak of the Incarnation of Eternal Immanuel in time, appearing in time as the everlasting Son of God, our Lord and Saviour.

It is instructive to note that the Jews speak of the everlasting sovereign God as "Adom Olam," and of themselves as the everlasting nation or the eternal in time (Am Olam).

In the Hebrew scriptures, the opening word of Genesis ("In the beginning") has for its first three letters the initials of the Hebrew words for Son, Spirit, and Father. The New Testament provides the complement in I Cor. xv, 28, where we read that in the end of all things God will be all and in all, as we have just been reminded in the paper.

With regard to the chicks, and their powers of discrimination, it may surely be argued that it is a Divine instinct, implanted within

them, that they should pick up the grains of corn, and reject the dirt. This illustrates in an effective way the discrimination of truth and error.

In reference to incredible distances, one recalled the statement that whenever the hand is raised a shiver is sent to the most distant star.

The mention of immense distances gives occasion for an expression of satisfaction that the writer does not seem to commit himself to the theory, which is so often obtruded on the minds of men in these days, that human history stretches backwards for an incredible space. I personally was sorry to see an exhibit in the South Kensington Museum bearing on this point, and appearing of all places in the Children's Gallery. It represents the development of transport for untold centuries, commencing with primeval and primitive man. The first exhibit was concerned with modes of transport as they existed ten thousand years ago, and the next, the methods in vogue five thousand years ago. It is striking that the differences are not very great. One cannot but regret that the young are misled in this way.

The doctrine of eternal salvation still further illustrates the connection between change and the eternal, inasmuch as the gift of grace received by faith is capable of continuous outworking until we are changed into the Divine image, while it is always God Who worketh in us to will and to do of His good pleasure.

Mr. EVERARD JOSE said: "All space-time experience, rightly understood, is a drama revealing the functioning of the Eternal." This sentence (Section V, p. 79) seems to sum up the whole of this illuminating and inspiring paper, with its good comfort and encouragement and its abundance of practical detail. The New Testament is richly full of the same great subject, agreeing with the evidence from Nature; and it is extraordinary how the clear Scripture light given to us has been passed by and neglected by each of the main schools of thought and types of mind, not only by the Rationalist and Institutional groups but also by Evangelicals.

God has spoken to us in His Son, Whom He hath appointed Heir of all things, through Whom, also, He made the ages. "All things through Him became, and, apart from Him, became not, *one* thing." "Of Him, and through Him, and to Him are all

things." In connection with Mr. Langley's four points, we may notice the Eternal (I) (II) and the changing physical entities, as a commentary on the words of Paul, "All things in Him hold together." Again, the reference in II to pervasive power in a living complex organism throws light on the meaning of such passages as "God has given to everything a body as it has pleased Him"; or again, "Ye are the body of Christ and members in particular"; and yet again, "He is the Head of the body, the Church." Passing on to III, it will be found that the discussion of the recognition and use of the pervasive forces illustrates the famous verse, "I can do all things through Christ which strengtheneth me." In the same fashion, passages in IV illuminate the New Testament phrase "Workers together with God."

All the actual laws of the universe are thus of necessity the laws of the Son of God. Both the permanent and fixed laws, as well as those of obligation, set before our free will. That statement includes the laws of physical nature, the laws of human nature, the laws of artifice and those of vision. Think, for instance, of such cases as the laws of number, the laws of mathematics, or the ultimate laws of music. All are the laws of the Son of God. Special attention ought to be paid to the laws of right choice in space-time. "I have set before you (space) this day (time) life and good, and death and evil." When we chose death and evil, and perverted the plan of God for our footsteps and environment, the Eternal came as an entity into space-time. "The Word became flesh and dwelt among us." He was in the world which came into being through Him, and it did not know Him. But to as many as received Him, He gave authority to become children of God. Through the blood of His cross came peace that all things might be reconciled to God, "on earth and in heaven." Soon "in heaven and on earth" was all authority given to the returning Son of God.

What is the culmination of this drama of the functioning of the Eternal in space-time? "He must reign until He has put all things under His feet." We see not yet all things put under Him, but we see Jesus at the right hand of God, in expectation till His foes are made His footstool. And the end is before us, when He shall have delivered up the Kingdom to the Father, having

put down all rule and authority and power; and the Son Himself shall be subject unto His Father, Who put all things under Him, to the end that God may be "all things in all things."

WRITTEN COMMUNICATION.

Mr. W. E. LESLIE wrote: The author discusses "Change" and "the Eternal," but neither of the terms is defined. Are they antithetical? The opposite of change is changeless (motion—motionless).

The popular idea of eternity amounts to this, "That part of the time co-ordinate not lying between the creation and an event set out in the Apokalypse," the part of the co-ordinate between these two points being known as "time." This may be based in part on the rendering of Apok. x, 6 "*chronos ouketi estai*" as "there shall be time no longer" but the words might be rendered "there shall be *delay* no longer." The theory is wrecked against that majestic phrase in John viii, 58, "Before Abraham *was* I *am*." Here we have a glimpse of an eternal order that is no mere extension of a time co-ordinate.

The author's illustrations of his "pervasive forms" might be simplified. Suppose two consecutive and equal motions of a point on any co-ordinate to be followed by a motion equal to the sum of the two previous motions. Suppose that sequence to be invariable in our experience. Suppose that we feel justified in regarding it as universal. Can we say that, though the particular point-events are all of them in space-time, yet the *form* of the sequence is not? Does this not carry us back to the old debate as to the objectivity of abstractions? I would suggest that they are objective for finite minds—because they exist in the Infinite Mind.

The Rev. Principal H. S. CURR wrote: Like all who heard Dr. Langley's paper, as well as like all who read it, I thoroughly enjoyed his clear and cautious exposition of a subject which is peculiarly appropriate in these days when change is much more in evidence than permanence. The paper's attempt to reconcile these two phases of existence and experience has been most suggestive, all the more so because of the writer's intimate acquaintance with

Indian life and thought, where the approach to these problems is different from that of Occidental philosophy.

Familiarity with the standpoint and spirit of Eastern thinkers may have been responsible for the use of the word "eternal" as a synonym for permanent as opposed to changing or passing. Eternal is an adjective which can only be used of God, and of such men and things as share in the Divine Nature in one way or another. It hardly seems justifiable to speak of the eternity of matter, or the eternity of energy, or even of the eternity of law. If the word be merely the equivalent of the enduring, then the paper leads us again to the contrast which finds classic expression in the New Testament. "And this word, Yet once more, signifieth the removing of those things that are shaken, as of those things that have been made, that those things which are not shaken may remain" (Hebrews xii, 27 R.V.).

In Mr. Langley's treatment of these contrasted factors in the world as it may be known, insufficient stress was laid upon the distinction between knowledge and its object. The latter remains the same more or less, yesterday, to-day, and for a long future, but knowledge of it is a constant state of flux. Thus hydrogen is probably identical now with what it was in the days of Aristotle, but theories regarding its ultimate structure, atomic or electronic, have been changing continually. The fact remains, the theory of its origin and nature, etc., continually changes. That observation even applies to these pervasive forces and factors which the paper seems to identify as "eternal." The law of gravitation might be regarded as such a force or law, but even its statement has been modified in recent years. The events, however, of which Newton's and Einstein's theories are the explanation (e.g., the movements of the stellar bodies) do not alter. Mr. Langley's problem seems to me to be one of epistemology more than of existence.

The antithesis of the passing and the permanent is much more clearly seen in the realms of religion and morality and philosophy than in empirical science. In these departments of man's life, the eternal elements are few and simple. They were early discovered and stated in imperishable form in the great books of the world, headed by the Bible. The statements of these basic principles is usually clothed in the garb of other days, which has long since

been discarded, but the principles themselves remain as valid and as valuable as ever. The stories of Scripture reflect an ancient civilisation which has long since vanished. The knowledge of God, which these stories enshrine, is becoming more precious as universal experience enlarges and deepens. Elizabethan England, whose ways and works shine through Shakespeare's plays on every page, has likewise disappeared, but "the tunes of life" which are scored in these same writings are everywhere and always sounding in our ears.

AUTHOR'S REPLY

Since the remarks made by Members of the Institute on my paper have been forwarded to me, I have learned with very deep sorrow of the death of Mr. Delevingne, whose presence in the Chair at the meeting I so greatly appreciated. Now that he is no longer with us it does not appear to me fitting that I should reply to his friendly criticism, but I should like to express my deep sense of the great loss the Institute has sustained, and my very deep sympathy with Mrs. Delevingne and the members of his family.

Principal Curr, while expressing appreciation of the argument generally, appears to doubt whether the term "eternity" is accurately used, and his doubt seems to have been shared by Mr. Leslie and other members. He thinks that "the influence of Eastern thinkers may have been responsible for the use of the word *eternal* as a synonym for *permanent* as opposed to *changing* or *passing*; whereas *eternal* is an adjective which can only be used of God, and such men and things as share in the Divine Nature in one way or another." For this reason he holds that "it is not justifiable to speak of the eternity of matter, of energy, or of law." These reflections seem to overlook my view of what may be described as the solidarity of the various grades of experience. It is true that, in working out the conception of *eternity*, I had in mind the characteristic ways in which it has been conceived by Eastern thinkers, but I found these inadequate for the reasons suggested in the first and second paragraphs of section V. In writing the paper, it was not my intention to use the term "eternity" as synonymous with "permanent"; nor did I intend to argue that the pervasive characters of material objects and events as such, that is in their

abstraction from what may be described as the higher grades of experience, are eternal. On the other hand, I hold that *as such* they are abstractions, and are therefore in themselves not real; although they reveal certain characters of reality. If pressed for some term to describe the "eternal," I should not use "permanence" or any similar term, but rather "creativeness." For my reflection leads me to conceive the Supreme Reality as ever the same because ever revealing Himself in His acts of creation; and thus as the changelessly-changing source of all becoming, who would himself change if He ceased to be the author of change.

Principal Curr also argues that insufficient stress is laid upon the distinction between knowledge and its object. In the paper I am only concerned with the epistemological problem in so far as it implies apprehension of objective features of experience, and it is to these that the relation refers which I am endeavouring to explain. Further, I agree that the antithesis of the "changing" and the "eternal" is more fully experienced in the realms of morality and religion, and that the statement of these basic principles is "usually clothed in the garb of other days which has long since been discarded." Part of my purpose in the paper was to cloth them in more modern dress.

Mr. Jose and Mr. Payne express agreement with my point of view generally, and it is not therefore necessary for me to comment upon the further reflections they have made; but I thank all those who, whether in writing or in discussion, have expressed their opinions.

806TH ORDINARY GENERAL MEETING.

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, FEBRUARY 22ND, 1937.
AT 4.30 P.M.

W. E. LESLIE, ESQ., IN THE CHAIR.

The Minutes of the previous Meeting were read and confirmed.

The CHAIRMAN then called on Mr. Alan Stuart, M.Sc., F.G.S., to read his paper entitled "Science and the Interpretation of Scripture."

SCIENCE AND THE INTERPRETATION OF SCRIPTURE.

By ALAN STUART, ESQ., M.Sc., F.G.S.

TO those who are both students of science and Christianity to-day, two very significant changes in outlook are taking place. On the one hand, many leaders of scientific thought are declaring that ultimate reality may be mental or spiritual, and on the other, many leaders of the Protestant Churches are finding no conflict between their religious beliefs and the commonly accepted conclusions of science concerning the universe and the origin and nature of man. This *rapprochement* between two parties (both avowedly seekers after truth), whose hobby for centuries has been throwing stones at each other, might at first sight seem to be wholly good. It is to be feared, however, that this amicable relationship has often been attained, at least on the Christian side, by surrendering beliefs which the writer regards as essential corollaries of New Testament Christianity. The doctrine of the Fall of Man due to disobedience of God's command; the consequent necessity for spiritual regeneration by faith in God on the ground of the atoning work of Christ on the Cross, are not now held with the tenacity of former days. This is due largely to the effect of evolutionary doctrines which have permeated into every phase of study and life, and which lead men to believe that it is inevitable that progress to higher and better things in the spiritual, moral and

mental spheres is automatic. These evolutionary doctrines, based upon the work of Darwin and Huxley, became largely materialistic in spirit. It was taught and believed by many that the process of evolution is a continuous one, taking place by means of fixed laws and continuing by means of resident forces. Hence there was no need to believe in a Creator nor was miracle possible. Doubts began to be thrown on the veracity of the Bible and its story of the beginning of things on this earth, and many people came to regard it simply as folk-lore or myth. A doctrine so destructive of their most cherished beliefs has been fiercely and continuously attacked by those who regard the Bible as the Word of God, divinely inspired, and therefore historically accurate and the final authority on God, man, sin and righteousness, and redemption.

It must not be concluded that because scientists say that ultimate reality may be spiritual that science now supports religion. The position is rather that it can now bring no valid argument against religion, since its scope is so much more restricted than either philosophy or religion, and it can know nothing of ultimate causes. Science in general studies natural phenomena, and sets itself to answer the question "How?". Philosophy takes within its scope the whole field of human activity and may be defined loosely as man's unaided effort to solve the riddle of the universe. Religion, rightly understood, also touches life at every point. Both religion and philosophy may use the facts and conclusions of science to enable them to answer the question "Why?", but the former takes into account the existence of a Creator and the possibility of a revelation from Him to His creatures. Hence the religious man is in a much better position to reach valid conclusions about the scheme of things around him than is either the scientist or the philosopher. It is to be regretted that he has not always made good use of his opportunities, for his views on the world around us have very often been in direct conflict with the views of the astronomer or the geographer. Witness the disagreement between the savants of Salamanca and Columbus as to whether the world was round or not; the anger of the leaders of the Church at the new and "unscriptural" views of Galileo as to the solar system; the burning of Giordano Bruno at the stake for his astronomical beliefs which were not in accordance with the interpretations of the scriptures by the Roman Church. We know now that the

Church was wrong, and had to change its interpretation, which, while it was in accord with the new knowledge of the time, was found not to change any fundamental belief one iota. These facts ought to make Christians very careful not to make dogmatic statements about the world of nature, based on a study of the scriptures alone. This practice has been far too frequent, especially in much of the anti-evolution literature published by and for evangelical Christians. Hugh Miller enunciated a sound principle when he said: "I would . . . without hesitation, cut the philological knot, by determining that the philology cannot be sound which would commit the Scriptures to a science that cannot be true" (p. 123*). In modifying a widely held interpretation of Scripture to be more in accord with new knowledge, we must, of course, be sure that the new knowledge is worthy of acceptance, that it has been well tested and is verifiable. Some evangelical Christians are very sceptical about the findings of science and the honesty of scientists (especially biologists and geologists!). It may be well to give a brief account of its methods and scope.

Scientific method essentially consists of (1) technical experimental means by which phenomena are observed and studied and (2) logical and mathematical treatment of the results of observation and experiment in order to discover the relations of the phenomena studied. Science can, in general, use only abstractions of the things it studies. In the science of physics, for example, such properties as weight, density, size, velocity, acceleration, etc., are studied. Now these are parts and not wholes. The world we live in is smelly and noisy, but the world of physics is none of these things.†

Science progresses by the study of phenomena, the relations of which are first tentatively stated by means of a hypothesis as a starting point for further study. The scientist's imagination must play a part at this stage. Hypotheses are tested by further observation and experiment, which will either lend support or not to the first ideas on the relations of the phenomena. An hypothesis (or a theory built up of verified hypotheses) which is found to withstand any test which can be applied to it comes to

* Hugh Miller, *The Testimony of the Rocks*. The Two Records, Mosaic and Geological. Edinburgh, 1884

† C. E. M. Joad, *Guide to Modern Thought*. London, 1933, ch. iv.

be regarded as a natural law by means of which "the invariable sequence between specified conditions and specified phenomena" can be stated. Hence, in spite of the fact that science can deal only with parts and not wholes, it can discover and relate certain things which are true in our experience and which are constantly found to be reliable bases for further research.

Remembering these things, then, that science cannot tell the whole truth, and that it cannot investigate ultimate causes, we will not fall into the error, on the one hand, of enthroning science instead of God, nor will we, on the other, cavil with the scientist because he has not discovered God nor made creation the starting point in his investigations. For instance, the following quotation is typical of many: "Yet how can science expect to reach correct conclusions if it does not accept as its starting point the great foundational truth that God is the Creator?" (p. 79*). A scientist who goes back causatively as far as he can, and then falls back upon the idea of creation as the ultimate cause, enters the realm of philosophy and leaves that of science. The truth of creation came to scientist and non-scientist alike by revelation.

And now let us turn to the Bible and ask how we are to regard its utterances in the light of science. If we take note of the references in Scripture to natural things, we find that they can be classified into three well-marked groups. In the first class come references of a literary character like that of Hab. iii, 6, "the everlasting mountains were scattered"; or of Gen. xlix, 26, "the utmost bound of the everlasting hills." The geologist knows that hills and mountains are transitory, but the idea is simply to express great length of time in relation to human life. Such rhetorical and illustrative references, to be understood by those to whom they were addressed, must conform to the ideas of the time in which they were written. The second group comprises what are commonly called miracles. All that need be said about these here is that in our own experience a new cause produces a new effect, without changing any of the laws of nature. Our heavier-than-air flying machines do not violate any known laws of nature, yet their flights would have been regarded as miraculous by the ancients. We must not forget that to explain a miraculous happening by means of some immediate natural cause does not necessarily get rid of the miraculous element.

* W. Bell Dawson, *The Bible Confirmed by Science*. n.d., London.

For example, to say that the town of Jericho stands in a very unstable district in which earthquakes are frequent, and that it must have been an earthquake that caused the walls to fall down flat, does not eliminate the miraculous coincidence of the trumpet blast and the collapse of the walls, of which, by the way, one part remained standing! A true appreciation of miracles necessitates a view of both the physical and spiritual realms.

The third group of statements is such that they can be classed only as direct revelations, for they do not conform to the scientific knowledge of their day, nor to that of long afterwards. One such, to which our attention is shortly to be directed, is the account of the creation found in the first chapter of Genesis, and others have often been noted, for example, in the Book of Job. Now although statements of the last class are very interesting and, indeed, important, in that they form some part of the evidence for the inspiration of the Holy Scriptures, yet it is the spiritual message that is of paramount importance in the Bible, and it is the inner spiritual meaning and truth that takes precedence over mere narrative. The great truth in the first chapter of Genesis is that God is the Creator, and the details of how and when He did the work are of secondary importance; the great truth in the story of the Noachic deluge is that God hates sin and must judge it; whether the waters actually overflowed every square foot of this earth is of secondary importance.

My excuse for discussing in this paper certain of these matters which I have classified as of secondary importance is that I believe that the present state of the controversy between the representatives of conservative biblical thought and the evolutionist camp warrants it.

In a discussion on this subject, certain other things must be borne in mind. Finality has not been reached in science, and a too ready desire to reconcile Scripture with any new scientific statement which seems to confirm an interpretation may lead later to an undignified retreat. It is surely significant that men have always been able to find texts which can be interpreted to fit the science of their time, and in each age Scripture has been quoted in support of erroneous views. This can only be done when quotations are taken from their contexts (whether Biblical or scientific) and the words of Scripture given meanings which their use in the Bible does not warrant. It behoves us, therefore, to eschew too dogmatic an utterance on matters which are

reasonably arguable or not finally proved, and to remember humbly that, just as science has not yet reached finality, we also, as Christians, only see as through a glass darkly. Our interpretations of some scriptures may have to be modified in the light of future knowledge. This will never affect the truth of God's eternal Word.

It is only natural that new knowledge which makes us reconsider our interpretation of a scripture should be received with caution. A strong body of conservative opinion is a necessity in human affairs, and nowhere more so than in religious matters. This conservatism acts like a damper on the swinging needle of a seismograph, and by its restraining influence ensures that change shall be gradual, time being allowed for the community to adjust itself to the new conditions. These preliminary matters having been dealt with, I will turn to the main subject with which I wish to deal, and that is the relation of the sciences which have contributed most to the doctrine of evolution, to the Scriptures.

I do not think that there will be any controversy about the amount of harm that the doctrine of *materialistic* evolution has produced in the realms of morals, religion, politics, economics, and indeed in every phase of human life. It is not the purpose of this paper to expound what has been done elsewhere much better than could be done here. It is a good thing that there are those who have spent time and talents to combat this evil. But when one surveys the anti-evolutionist literature as a whole, with the exception of a few outstanding examples, one is immediately struck by several facts. These are, that the basic facts of geology and biology, upon which the theory of evolution has been based, are very rarely presented at all or, if presented, are shown in an unfair light. It too commonly appears that a jibe and an exclamation mark are regarded as substitutes for cogent argument. A very common method of attack is to conclude that because scientists differ widely on the exact age of the earth, or the causes of evolution, that therefore there are no facts worthy of consideration, and that the theory of evolution is a figment of the imagination. It is forgotten that the same mode of argument can be used by the non-Christian, who, looking upon Christendom and its multitude of sects and differing views, comes to the conclusion that there is nothing in Christianity. The Christian knows that this conclusion is not justified, and should therefore

be willing to allow that such arguments used against the scientist are also invalid.

In any discussion on the subject of science and Scripture, the following points should be noted :

- (1) The scientific knowledge must consist of verifiable facts or laws, accepted by the majority of people qualified in the relevant subject.
- (2) The Scripture under discussion must be studied primarily to get the meaning it bore at the time of writing, *i.e.*, the words of the original bear the meaning they had when they were penned. This does not mean that they may not have an added meaning now in the light of later happenings.
- (3) The meaning to be given to any word must be decided in the light of the use of the word by the Holy Spirit in Scripture.

Certain words which will appear in the following part of this paper will here be defined. For the idea of an evolutionary process initiated and carried on simply by so-called natural forces, governed wholly by chemical and physical laws, and for which is denied the necessity for any creative agency or acts, *i.e.*, denies that God created the heavens and the earth, the term *materialistic evolution* will be used. For the idea of a process which simply implies the production of the many forms of life from one or many older forms of life, by gradual and/or saltatory changes during descent by whatever means, the term *evolution* will be used. The term *special creation* implies that every present-day species was separately created and has remained essentially unaltered since it came into being. Whenever the word *creation* is used, it means the power of God exerted to bring into being some form of life (*i.e.*, a species), *not necessarily* instantaneously. An *orthodox Christian* is one who accepts the "categorical imperatives of the Christian faith."

The subject will be dealt with in the following order :

- (1) A statement of the relevant facts of geology.
- (2) A discussion of their interpretation.
- (3) The relation of the above to Genesis i.
- (4) Summary and conclusions.

It is necessary to make a brief statement of the relevant facts because attempts have been made recently to deny the fundamental bases of geological science.* It must be stated here categorically that the geological arguments used in these books are quite unsound, and are based upon either a wilful misrepresentation of the facts or a woeful ignorance of them, and this in the name of the truth of Christianity. Such attempts gain scant notice from geologists, but amongst non-scientific Christians and sincere inquirers much harm is done by arguing untruthfully for the truth (Job xiii, 7).

As to the origin of the earth, the geologist has little to say. This is the field of astronomy; but all theories agree that however the material aggregated a stage must have been passed through when the earth was blanketed from solar radiation by planetesimal dust or the clouds of the primitive atmosphere.†

The science of seismology has provided evidence as to the inner constitution of the earth,‡ and shows that the crust of the earth is very irregular, being probably 40 to 50 miles thick under the high mountain ranges but very much thinner under the oceans. The crust is not an homogeneous layer, or a series of regular layers extending round the earth, but is composed of different kinds of rock from place to place, piled upon and against one another.

Three main classes of rocks occur, namely, *igneous rocks* which have been formed from a molten magma by cooling and crystallisation; *sedimentary rocks* which have been formed from the detrital debris of older rocks undergoing denudation; and *metamorphic rocks* which have been formed from the other two groups by means of heat or stress. It is with sedimentary rocks we must primarily deal, for it is in them that the organic fossil remains of former living creatures are preserved.

The relative ages of various strata are established by the *law of superposition*, younger beds being laid down upon older ones. Except in places where compressive earth movements resulting from mountain building activities have altered the relative sequence

* G. McCready Price, *Q.E.D.* (New York, 1917) and *The New Geology*.

† H. F. Osborn, *The Origin and Evolution of Life*. 1925, p. 43.

‡ R. A. Daly, *Igneous Rocks and the Depths of the Earth* New York 1933.

of the rocks by thrusting and over-folding, *this law is axiomatic*. Some thrusts are nearly horizontal and simulate bedding, but the true character of the junction is readily recognised on close inspection.

Knowledge of the relative ages of fossils depends upon the same principle, that is the younger lie above the older. It is also a well-established fact that in every part of the world where the succession has been examined there is agreement as to the general sequence of fossil forms. It used to be thought that migration of faunas would lead to wholesale reversals of the order of fossils in different areas, but this has been found to be a rare exception and not the rule. When such reversals happen, neither the general aspect of the faunas nor the broad sequence is affected. A comparison of the diagrams of fossils from the Cambrian or Carboniferous rocks of Europe and America would convey the truth of this generalisation to the non-specialist, and it applies generally to every period. (The special case of the Australian continent will be referred to later.) The "*principle of faunal dissimilarity*" which postulates that the fossils found in the several rock formations are peculiar to those strata," is another important principle of geology. It is therefore possible to trace the history of life on the earth as it is revealed in the rocks now exposed. The fossil record is not complete, because animal remains need special conditions for preservation to take place, and land animals and plants have a much smaller chance of being preserved than have those which live in water. Usually only the hard parts of animals are preserved, but often the internal structure of a fossil is perfectly preserved by having been chemically replaced molecule by molecule. These can be studied as easily as modern species by making rock sections through the animal at small intervals.

The maximum thickness of the sedimentary rock cover has been estimated to exceed 60 miles, and is probably up to 80 miles thick. This is the amount of material which has been laid down first of all horizontally. To get the above result, the maximum thicknesses of succeeding formations are added together,* from Cambrian times onwards. This thickness of sediments must have taken immense ages to build up. It is significant that the more the question is studied greater and greater time is

* *The Physics of the Earth*, IV. *The Age of the Earth*. Nat. Res. Council, Washington, 1931, p. 18.

found to be necessary, and the consensus of opinion now is that 100,000,000 years is a very conservative estimate from the beginning of Cambrian times until the present, and the conclusion is forced upon one "that the records of the rocks fully justify us in claiming for the earth an antiquity so vast as to be far beyond the power of the human intellect to grasp."

Methods based upon the ratios of lead isotopes produced from uranium and thorium give much greater ages than those which have been deduced from the rate of accumulation of sediments. Sir Ambrose Fleming, in a recent paper to this Institute, threw doubt upon the accuracy of these methods by showing that many isotopes of lead may be present in minerals, and that the result may be invalidated owing to difficulties in determining their proportions and mode of origin. These difficulties are realised to the full by those engaged in the work. The following quotation sums up the situation. "In attempting to build up a time scale it is clear that we have to steer a difficult course through a maze of data of very variable quality, guided in some places by atomic weight evidence, in others by series of accordant ratios, but in far too many by a subjective weighing of probabilities. Nevertheless, although only a few points can be fixed with precision into the geological column, and the total assemblage of data is too confused to permit detailed accuracy, it is remarkable how consistently the most probable ratio for each of the various suites falls into its proper place and order as judged by geological age. That this is so must be considered the final proof that the ratios selected are at least of the right order, and that no serious error is anywhere involved."* The date for the latest Cambrian of Sweden, one of the best results obtained so far, is given as 450,000,000 years.

The earliest well-developed faunas appear in the Cambrian system where every invertebrate family is represented. In the Pre-Cambrian, certain evidences of former life have been found. Beds of limestone and layers of graphite, together with phosphatic nodules, are the lithological evidences. Very ancient plants may be represented by graphitic capsules from the Pre-Cambrian of Finland, an ancient crustacean by *Bellini danai* from the shales of Montana, and in addition worm tubes, algæ and sponges are listed from different localities.

* *The Physics of the Earth*, IV. *The Age of the Earth*. Nat. Res. Council, Washington, 1931, p. 435.

Following the invertebrates of the Cambrian, come in turn the first vertebrates (fish), amphibians, reptiles, birds, mammals, and lastly man. The successive appearance of higher forms of life is one of the fundamental facts of geology, and forms an important part of the evidence upon which the theory of evolution has been built. Now the theory of evolution depends for its support not only upon the belief in the continuity of the life stream but upon the ordered sequence of life forms, and the anti-evolutionist has endeavoured to throw doubt upon the truth of both these concepts. While it is true that many of the groups of animals became extinct, and were apparently replaced by entirely new groups in the same locality, yet other forms come down almost unaltered from very ancient times. For example, the genus *Lingula* has a range from Ordovician to Recent, and the genus *Nautilus* extends from the Trias to the present day. It must be remembered that some of the gaps which now occur in the sequence may be bridged in the future, as a very small area of the world has been examined in any detail as yet. Work in Mongolia has recently brought to light many curious and strange types of mammals. Further, in certain groups of rocks series of fossils occur which show such small progressive changes as they are traced vertically from horizon to horizon that it is difficult to believe that the later forms are not the descendants of the earlier ones. Examples, such as the minute changes in the Cretaceous echinoid *Micraster*, the various Jurassic ammonites and the *Ostrea-Gryphæa* sequence of shells in the Lower Lias, can be cited. The existence of these more gradual sequences is another fact which has been used to uphold the theory of evolution. A third fact, the importance of which cannot be too strongly emphasised, is that there is absolute continuity between the fossil sequence and that of the life of the present time; the evidence for this is overwhelmingly strong. Present-day plants and animals descend far down into geological strata. For example, "the plants found in the Forest Bed (Pliocene) include upwards of 130 species of flowering plants which are nearly all living in Norfolk at the present day" (this and the following quotations from pp. 483, 467, 431, and 432*). In the Norwich Crag (still older) of the marine molluscan fauna "nearly 90 per cent. are still living." The gradual decrease of

* E. Neaverson. *Stratigraphical Palæontology*. 1928.

living molluscan species at earlier and earlier horizons in the Pliocene is given :

					<i>Per cent. not known living</i>
Icenian	..	..	..	..	11
Butleyan	..	..	..	..	31
Newbournian	..	..	..	..	32
Waltonian	..	..	..	..	36
Gedgravian	..	..	..	..	38

Lower still "in the marine Tertiary faunas, gastropods and lamellibranchs are extremely abundant, and in general approximate closely to existing assemblages, though most of the species are extinct. Among the older Tertiary floras of Britain are genera of poplar, laurel, acacia, oak, elm, willow, maple, and many genera of plants allied to those now only found in tropical countries." "By the end of Cretaceous times, the flora had assumed the general aspect that it has to-day."

These, then, are the fundamental contributions of Palæontology to evolutionary evidence.

It might now be asked whether the evidence is such as to justify a belief that life has originated in some lowly cellular organism and has continued to advance continuously through the various stages enumerated above. Some have maintained (on the basis of their interpretation of Scripture) that even in the most perfect and gradual series of fossils no proof of genetic relationship is forthcoming. On this aspect of the problem I quote from my paper "Genesis and Geology."* "For example, Davies remarks (*Trans. Vict. Inst.*, 1927, p. 38), 'What the evolutionist, to my mind, has to prove is not the succession of forms (to which the rocks give ample witness) but the actual genetic continuity between those forms. Palæontology is the only branch of science to which we can appeal for evidence upon this point and Palæontology in my experience is incapable of demonstrating continuity anywhere'; and again, 'there is no method known to science whereby even one single step in descent can be established apart from historic testimony,' and in support he quotes Dr. Bather (an evolutionist) as saying, 'the palæontologist cannot assist at ■ single birth (*Trans. Vict. Inst.*, 1926, p. 221).'

* A. Stuart, "Genesis and Geology," *Evangelical Quarterly*, vol. 1, 1929, p. 350.

view will appear to many scientists to be extreme, and indeed he himself confesses (*op. cit.*) that in describing a succession of certain Tertiary Echinoderms the temptation to "regard modifications of type found at certain horizons as evidence of progressive evolution through descent was almost irresistible." In the same paper it is suggested that each group of slightly modified forms was separately created or alternatively reached their present positions by local changes in conditions (migrations?). The present writer firmly believes in special creative acts by God but thinks that in cases similar to that quoted above the attempt to defend separate creation for each successive assemblage makes more difficulties than are necessary. For if the sequence is not admitted to be a genetic one no descendants of lower groups can occur at higher horizons. This means that either *all* the progeny migrated to another locality or that the creatures were sterile—both suppositions being more difficult of belief than that the sequence is a natural genetic one. If it be maintained that the sequence of such closely related forms is due to incoming migrations, it is difficult to see how the *accident* of migration resulted in so orderly and progressive a series. Statistical studies of such groups have recently begun. One instance will suffice in illustration, namely, the *Gryphæa* sequence in the Lower Lias (*Geol. Mag.*, 1922, p. 256). If numerous specimens are taken from one horizon, and a variation curve is made for any one character in which the group as a whole progresses, such as the coiling of the shell, it will be seen that the community is homogeneous. If the variation curves at successive horizons are plotted with respect to horizon and the number of whorls, it will be seen that whereas the group progresses as a whole, the successive curves overlap somewhat. The point to be noticed is this—that some specimens from one horizon can be fitted into place at other near horizons, but occupy a different relative position in their new setting. This is strong evidence for continuity. "Such a progressive stock must be regarded as a 'plexus' or a bundle of anastomosing lineages" (Trueman, *Rep. Brit. Assoc.*, 1926, p. 356). Swinnerton remarks, "In no case where such careful study of the evolution of a biocharacter has been conducted has any indication of saltation been detected."* Discontinuity must, of course, occur in those characters in which a continuous mode of change

* H. H. Swinnerton, *Outlines of Palæontology*. 1930, p. 390.

is impossible, as, for example, the addition of a tooth to the jaw or an extra digit to the hand, the latter and similar variations being known amongst human beings.

The elucidation of apparent lines of descent through the geological sequence is fraught with many difficulties, mainly due to local gaps in the sequence, and to the paucity of specimens for statistical study, especially amongst the higher animals. Coulter* states, "It is something like the difference between the tracks in a switchyard and the main line. We have succeeded in investigating the switching, but the through trains are baffling."

A fair summary of the evidence supplied by Palæontology for progressive change during descent is as follows :

- (1) A succession of fossil forms from extinct invertebrates to living species of mammals is seen, some groups showing apparently continuous fairly rapid changes together with short geological range, while others show little change in time, and have long geological histories.
- (2) The fossil series is continuous with the present animal and plant world. (Note that the glacial period exerted an insignificant influence in the production of new forms. This is important as some writers have made the glacial period the "chaos" of Gen. i, 2.)
- (3) Man has appeared very recently, geologically speaking.

The question might now be asked whether the evidence broadly outlined above is sufficient ground upon which to build a theory of evolution. For about eighty years scientists have been labouring to find a cause for evolution. They have failed absolutely. The theory of natural selection which has held the field for so long is becoming suspect in many camps. Interference with organisms by man can cause variations of small degree, but when free breeding is allowed the type seems to be preserved. Exposure of the organism to short-wave radiations alters the chromosomes and thereby induces variations, and some have therefore suggested that the cause of evolution may be due to the effects produced by some form of cosmic radiation. This is non-proven. The evidence seems to point to the fact that no changes in organisms are at present being produced by natural processes comparable with those which have occurred in the past. The literature on evolution is studded with confessions that as yet there is

* J. M. Coulter, *Ann. Report Smithsonian Inst.*, 1926, p. 325.

no adequate explanation of progressive changes, the advance of one group to another of higher rank.

So we may conclude this section by saying that there is a large body of evidence witnessing to orderly changes in organisms in the past, and that these changes appear sometimes in continuous sequence and sometimes suddenly. Secondly, the causes of these changes is not understood. Lastly, no proof exists that comparable changes are taking place in nature to-day.

Let us now discuss these findings in relation to the account in Genesis i.

The divine account begins with the assertion that God is the Creator. This is a revelation beyond the scope of science either to find out or to contradict.

It has often been pointed out how the record of the rocks parallels the account in this chapter. The only apparent discrepancy is that undoubted fossil plants are not found commonly in the earliest rocks. It is obvious that animal life needs plant life for its existence, and the discrepancy is only due to the poor preservation of the earliest flora. It used to be taught, and still is, that plant life originated in the oceans. This, as T. C. Chamberlain points out, "is . . . little more than a cosmogonic assumption,"* and both he and Osborn† express the view that plant life originated on the continents. This is in accord with the record of our ancient authority. Sir J. W. Dawson has pointed out the extraordinary aptness of the Hebrew words to designate the various groups of animals as they are brought into existence. These are: *sherets* or "swarmers," v. 20, or oviparous groups; *oph*, translated "fowl," but referring to all winged creatures; *lanninim*, elongated animals like crocodiles or Ichthyosaurus, etc., but not "great whales"; *behemah*, *remes* and *haytho-erets*, the land animals of v. 24 mean herbivorous animals, small quadrupeds and wild animals (the carnivores) respectively. The meaning of these words is made clear in Lev. xi.

This identity even to small details (so far as is possible in so simple and condensed account) of the written and the geological record, coupled with the fact that the fossil record merges without break into modern times, can mean one only thing, and that is

* T. C. Chamberlain, *The Origin of the Earth*. Chicago, 1924, p. 250.

† H. F. Osborn, *The Origin and Evolution of Life*. 1925, p. 35.

that the written account describes the record of the rocks. The evidence all points against the interpretation that the geological record can be dropped in between the first and second verses of the chapter. This theory was formulated over a hundred years ago to fit in with the ideas of the time, and was not held by either Hugh Miller or Sir J. W. Dawson, who were in a better position to assess the value of the evidence than was Dr. Chalmers in 1814. Again, the fauna of the Australasian continent bears many resemblances to the Mesozoic fauna of Europe. The New Zealand lizard *Sphenodon* survives from the Mesozoic of Europe, as does *Heterodontus*, the Port Jackson shark. *Trigonia*, a characteristic Mesozoic lamellibranch, is found in Australasian seas. The marsupial mammals, now common in Australia, lived in Europe during the early Tertiary and the Mesozoic. All these facts converge and lead to one conclusion, that there is no time-gap between the first and second verses of Genesis. The theological sequence of creation and "chaos," followed by reconstruction, is a scriptural one, but it can be applied only to the whole of the Creation story, the fall in Eden, and the work of redemption in Christ, which is the only "new creation" mentioned in the whole of Scripture. The philological arguments from the use of the words "tohu" and "bohu" appear to me to be forced. The idea of *chaos* is not present in the words, which mean simply "desolate" and "empty," in the sense that the earth was uninhabited. Isaiah xlv, 11, means that God went on to complete His work to make the earth fit for man's habitation, "Who formed the earth and fashioned it, Who fixed it firm, made it no waste, but for inhabitants" (Moffat). With Dr. Yahuda, I believe that Genesis i, 1, is just a plain statement of fact amplified in the rest of the chapter.* It follows that the creative days (referred to as one day in the second chapter) are not of twenty-four-hour periods. Sir J. W. Dawson says, after discussing the meaning of the *Olamim*, or ages of Psalm xc, "That this idea of long creative periods has been obscured in our time, is one of the lamentable inheritances of the Middle Ages. It is time now to revive it, not only in learned discussions but in popular teachings."†

The orthodox Christian exegetists, who emphasise the use of

* A. S. Yahuda, *The Accuracy of the Bible*. London, 1934, p. 139.

† Sir J. W. Dawson, *Modern Science in Bible Lands*. London, 1888, p. 16.

the word "*bara*"—"to create," in vv. 1, 21 and 27, do not explain the surprising omission of it from verses 11 and 24 where one would naturally expect to find it. In verse 11 the command is "Let the earth bring forth" and in verse 24 the same command is coupled with "*asah*"—"to make." The use of words is very significant in Scripture. "Holy men spake as they were moved by the Holy Spirit." So there must be some difference between the operations differently described. The word "*bara*," while it is mostly used to describe a creative act bringing into being something which has never existed before, and an act complete in itself, is used in another sense as of a continual creative process, as in Psalm cii, 18, "The people which shall be created" (see also Is. liv, 16; Ezek. xxi, 30; Mal. ii, 10). I do not suggest that it is so used in Genesis i, but the fact should be borne in mind. "*Bara*" evidently means in Scripture the act by which something is brought into being which no process in operation at the time would do by itself. Now, as I pointed out in the discussion on the recent paper by Dr. Clark, observation shows that associated phenomena are related to one another as alternate series of crises and processes, or, to put it another way, by causation and development. Take, for example, the crisis of conception, the process of growth during gestation, the crisis of birth, the process of growing to maturity and old age, the crisis of death; the process of the work of the Spirit of God upon an individual, the crisis of conversion, the process of growth in grace and in the knowledge of Christ, the crisis of the freeing of the spirit from the body, etc. It is my conviction that the word *bara* records the major creative crises in the record of events, and that *asah* and its accompanying commands indicate the processes following the causative act of God, being all the time directed and controlled by Him. There is nothing, it seems to me, in either the Bible or in science to forbid the interpretation that evolution, in the restricted sense of variation during descent, has actually taken place, and that what the scientist calls organic evolution and endeavours to explain by such a theory as that of natural selection is only the evidence of the processes which God originated by creative acts. It is very significant that just as the astronomers and physicists are being compelled to suggest that ultimate reality may be mental or spiritual, so certain evolutionists are showing a change of viewpoint. Almost the last words in a recent symposium on evolution were to the effect that evolution does

not get rid of God but only demonstrates how He works.* Berg also, the Russian scientist, in his book on *Nomogenesis, or Evolution by Law*,† states that he believes that some directive force, working according to a law not yet understood, was the controlling factor.

Against the view that progressive change has taken place, it is sometimes urged that the plain meaning of the words "after his kind" forbid it. Yet if the use of this phrase in Lev. xi is studied, it will be seen to be used to express the idea of a group which shows variation.

After the creation of man it is said (Genesis xi, 2, 3) that God "ended the work which He had made" and "rested from all His work which God created and made." This *creative* work, and this alone, having been finished, it would follow that both the apparently continuous and sudden changes in organisms would cease. If this is correct, science will not be able to find evidence that evolution is now proceeding, and any arguments against evolution based on the study of modern forms lose point, and do not prove that such changes *never* took place.

I have no space on this occasion in which to deal with the thorny problems of the origin of man, but the following remarks can be made :

The words "in the image of God" cannot refer to man's body, for God is a spirit. The important thing is that man came into existence as the result of a creative act, and not as the result of any process which was in operation previously. Man, to the scientist, is a tool-using animal, but this definition will not fit the biblical description. Man's moral and spiritual nature is the result of the special creative act of God. This much is very plain. Biblical chronology (Ussher) places the appearance of Adam at about 4000 years B.C. There are many other computations on the same evidence up to over 6,000 years. Man appeared in the Pleistocene, and recently, by a new method of counting the layers in "varved" clays formed by the outwash muds from glaciers, de Geer has been able to date much more certainly than has been possible heretofore the end of that period. The end of the Ice Age in Norway is reckoned to be about 8,700 years ago. (*Science Progress*, vol. xxx, 1935, No. 117.)

* H. H. Newman, *Creation by Evolution*. London, 1934, p. 370.)

† L. S. Berg, *Nomogenesis*. London, 1926.

The only points I wish to make in conclusion are these : Much of the attack prosecuted by orthodox Christians on the doctrine of materialistic evolution has, I believe, wasted much time and effort in trying to throw doubt upon the geological facts on which the theory has been based. This is a hopeless task, for there is plenty of evidence which will reasonably support a belief in progressive organic change, and this is the reason why I believe that the world of science goes on calmly and takes no notice of the wordy warfare. In all humility, may the suggestion be made that the time has come to combat the evils of materialistic evolution, not by decrying science and scientists but by positive statement of our belief in God as Creator, and a fearless presentation of the Gospel of Christ ? Only thus will we get the ear of the outsider, whom we have antagonised by our preoccupation with unessential things.

DISCUSSION.

The CHAIRMAN (Mr. W. E. LESLIE) said : In order to save time, I will not comment on the paper. Within recent days I have talked with two young men. Both were evangelical Christians. Both were scientific workers. Both said they found it necessary to keep their science and their Christianity in watertight compartments. That is morbid and dangerous. The fault lies with those elders and teachers to whom these young men (and thousands like them) have the right to look for help. The help is too often not forthcoming—perhaps because of laziness, perhaps because of the pride that will not admit ignorance or tolerate contradiction. Whatever may be thought of the merits of the paper, it is at least an honest attempt to meet the situation.

Mr. DOUGLAS DEWAR said : Mr. Stuart shows much greater independence of thought than do most present-day geologists and biologists. He has taken a bold step in asserting that evolution is no longer going on, is a thing of the past, and I hope that one day he will “go the whole hog” and doubt whether evolution has ever taken place.

As I recently in this room commented on the radio-active method of estimating the age of the rocks, I will now only repeat that the

method is based on unproved assumptions, one of which, that radio-activity took place millions of years ago at the same rate as now happens, we certainly cannot demonstrate. Indeed, Mdme. Joliot recently at Cambridge, gave reasons for thinking that formerly it was much more rapid than it is to-day.

Mr. Stuart, in accepting supposed Pre-Cambrian fossils as such, does not seem to be aware that in 1935 Dr. Percy Raymond, President of the Palæontological Society of America, as a result of a careful scrutiny of all such supposed fossils, rejected out of hand all save three, viz., what he thinks *may* be burrows of worms, what *may* be the products of brown algæ, and *Beltina*; but of this last he says: "Unfortunately it cannot be accepted until checked by later discoveries." I reject these because, if the evolution theory be true, the pre-Cambrian seas must have swarmed with animals, and their sediments should hold large numbers of fossils. Three possible kinds of fossils is an impossible number. It is a case of many or none at all.

The rocks seem to indicate a great creation at the beginning of the Cambrian period.

Succession does not necessarily imply descent. Archæology shows that the Romans appeared in England before the Saxons, and the Saxons before the Normans, but this does not prove that the Romans originated before the Saxons, and the latter before the Normans. Mr. Stuart, in common with almost every other geologist, makes the great mistake of believing that there is a necessary connection between the date of the first appearance of a group of organisms as fossils in the rocks known to us and the date of the origin of the group in question. The greater number of fossiliferous rocks known to us were laid down under the sea, and are formed largely by sediments derived from land. Thus the fossils they contain are only of marine animals that lived *near the land*. The fossils tell us nothing of the aquatic organisms that lived far out at sea. Rocks laid down on land are eroded away so rapidly that none laid down in the Cambrian, Ordovician, and Silurian periods has been preserved. For all we know, the earth may have had a rich land population during these periods. The fact that a great and diversified land flora extending from Spitzbergen to the Falkland Islands appears in the Devonian must mean, on the evolutionary hypothesis, that land

plants existed millions of years before the Devonian period. The Palæozonic and early Mesozoic land rocks known to us are almost certainly those laid down in very low-lying areas which happened later to become submerged beneath the sea and there became preserved owing to being covered by protecting sediments, and have been subsequently re-elevated. The fossils in these rocks are those of the comparatively small part of the land floras and faunas inhabiting the earth. The known rocks tell us nothing about the early inhabitants of the highlands and mountains. In no other way is it possible to interpret, on an evolutionary hypothesis, the sudden advent of a great and widespread host of flowering plants in the Cretaceous, and of placental mammals in the Eocene. Clearly the Devonian and Cretaceous floras and the Eocene placental mammals were either specially created in those periods or they migrated to the regions in which their earliest known fossils occur.

A most significant fact is that no new order of plants or animals has appeared in the rocks since the beginning of the Oligocene period. The explanation of this is, I believe, that not until the Tertiary do we know any rocks laid down in elevated regions. Another significant fact is that every great group of animals and plants appears abruptly in the rocks in considerable diversity, exhibiting all the peculiarities of the type and, after its first appearance, each group undergoes little or no modification.

Lt.-Col. SKINNER said : The author has given us a very thoughtful paper, on which one would like to make many appreciative references ; but our time is limited and I must confine myself to two points, and those by way of criticism. First of all, on page three, he challenges Dr. Bell Dawson's query, " Yet how can Science expect to reach right conclusions if it does not accept as its starting point the great foundation truth that God is the Creator ? " May I put the question another way ? " How can science expect to reach correct conclusions while ignoring, on one hand, the clear evidence in nature of a directive mind, and on the other, the palpable evidence in history of the antagonistic working of supernatural powers of good and evil ? " Science says, in effect, " We cannot see these powers." Neither can science see electricity.

Secondly, in his penultimate paragraph, the Author says, " The words ' in the image of God,' cannot refer to man's body, for God is

a spirit." On the surface this appears indisputable, and in fear lest the stigma of anthropomorphism attach to our reading of the Scripture, we clutch at it as an axiom. Yet I venture to submit, very reverently, that this dictum, so simple and obvious, does not fully satisfy the content of the actual words of Scripture. Consider briefly the following passages: (Gen. i, 26, 27; II, 7), "And God said, Let us make man in our image, after our likeness . . . ; So God created man in his own image, in the image of God created He him; male and female created he them . . . And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul."

I think we shall all agree that, with man, God's creative activity reached its culmination. In that wonderful unveiling in the viiith chapter of Proverbs (from ver. 22 on), we see how all the works were directed to the earth being made habitable for man, and led up to the climax of his creation (v. 31) "my delights were with the sons of men." That was the purpose of God, to prepare a worthy place for habitation, and there to place a being fit to inhabit it and fit for fellowship and co-operation with himself. And it is of this being that we read, "So God created man in his own image, in the image of God created he him." Now while it is indeed true that "God is spirit," and equally true that "No man hath seen God at any time," it will not be disputed that, despite man's disobedience and fall, God has manifested Himself to man in the course of history many times. Consider the indubitable theophanies of the Old Testament:—the appearances to Abraham (Gen. xviii, 1, 2, 16-22, 33 and xix, 1); as Captain of the Lord's host to Joshua (v, 13-15); as the Angel of The Lord to Gideon (Jud. vi, 11); and again to Manoah (Jud. xiii, 3, 22, 23). In every appearing it had been as a man; a glorious being, if you will, but nevertheless in human form. Then lastly, His appearing in the person of His well-beloved Son. Does any one say, "It is only natural that God should appear in the form most familiar to man?" My reply would be that, inasmuch as man had been created in the image and likeness of God, if God were to manifest at all, it could scarce be in any other form than that created by Himself to bear His own impress. There is profound mystery here and we may not dogmatize, but lest the thought be deemed unscriptural, hear what St. Paul, whose

knowledge of divine mysteries was unexcelled, has to say : (Col. i, 15, 19, Weymouth's translation), " Christ is the visible representation of the invisible God, . . . for it was the Father's gracious will that the whole of the divine perfections should dwell in Him " ; (ii, 9, A.V.), " For in Him dwelleth all the fulness of the Godhead bodily." Or the writer to the Hebrews (i, 3, R.V.), " Who being the effulgence of His glory, the very image of His substance " (A.V., " the express image of His person ").

Or again, Our Lord's own word to Philip, who had asked, " Lord, show us the Father and it sufficeth us." " Have I been so long time with you and dost thou not know me, Philip ? He that hath seen me hath seen the Father."

Surely, then, in the human form alone, with all the marvellous faculties of its endowment, and independent of spiritual equipment, may there not (must there not) be something reflecting the mind, even the form of God ; something that cannot be predicated of any other creature ? Manifestations of His power and wisdom we may find in all His works in nature, but manifestation of His person in man alone.

Why stress the point at all ? Because I feel it is better to take the word in all its simplicity, just as we find it, unexplained (unexplainable, if you will), than to play for safety with a popular exegesis that puts asunder what God hath joined together in distinct creative act, and inevitably lends itself to keeping alive the pagan philosophy of organic evolution.

Mr. L. F. JOSE said I wish to ask two questions of the lecturer: (1) Is it a fact that the successive stages of the geologic series are, as a rule, homogeneous ? Each fossil being of the same form as all the others of its kind in the same layer, but differing slightly from the examples to be found in the strata above and below ? (2) In so far as this is the case, does it not follow that any conceivable evolution must also have been homogeneous ? All the members of a species developing simultaneously in a similar manner, whether in an evenly advancing wave, or in sudden simultaneous changes ? If there had been structural differentiation of individuals in the struggle for life, some more advantageous, some less so, then we should expect to see fossil variations side by side in the same strata, i.e., heterogeneity, not

homogeneity. But simultaneous variation appears to involve an active principle in each evolving species, quite independent of competition, or environment, or any other incidental circumstances.

These may be the elementary questions of an amateur. But the answers to them are of obvious importance, and experts are remarkably silent on the subject.

Mr. GEORGE BREWER said : On page 105 this statement occurs : " The philological arguments from the use of the words 'tohu' and 'bohu' appear to me to be forced. The idea of *chaos* is not present in the words, which mean simply 'desolate' and 'empty' in the sense that the earth was uninhabited." Gen. i, 1, states "In the beginning God created the heaven and the earth." Verse 2 does not mention heaven, but states that the earth was "without form and void." Dr. Young in his literal translation renders the passage "the earth hath existed waste and void." The inference would be that a serious catastrophe had taken place, the result of Divine judgment. The fact that the life germ of seeds remained in the earth, as implied in verse 11, shows that the earth was originally in a perfect state as it came from the creative hand of God. This gap between continuous passages of scripture is not an isolated instance ; the same occurs in Isaiah ix, 6, "Unto us a child is born, unto us a Son is given : and the government shall be upon His shoulder." Nearly 2,000 years have elapsed between these two statements, and the second is not yet fulfilled. Again, in Isaiah lxi, 2, "To proclaim the acceptable year of the Lord, and the day of vengeance of our God," the last being still unfulfilled.

On page 107, line 8, the statement that the words "after his kind" does not necessarily forbid the idea of organic evolution seems appalling. That many varieties occur within the species, occasioned by environment and other causes, is generally admitted ; but these are within clearly defined limits, as proved by experience in the case of both plants and animals. Again and again in Gen. i, the truth is clearly emphasised, that both in the special creations, and in the commands for the earth and waters to bring forth that which was already in them, it was to be "after their kind," and in verses 11 and 12, the additional statement is added "whose seed is in itself." This basic truth is confirmed in 1 Cor. xv, 39,

"All flesh is not the same flesh : but there is one kind of flesh of men, another flesh of beasts, another of fishes, and another of birds."

On page 107 it is stated that "the words 'in the image of God' cannot refer to man's body." Of course not! They can only refer to the whole man, spirit, soul and body. How can a spirit be said to be an image, which must be visible? Our Lord is stated in Col. i, 15, to be "the image of the invisible God," and Heb. x, 5, states concerning Him, "a body hast Thou prepared me." In view of these, and other scriptures, to suggest that God may have used the bodies of the lower animals in the creation of man, appears to me to be unthinkable, and a needless concession to the speculative theories of Evolutionists.

WRITTEN COMMUNICATIONS.

The PRESIDENT (Sir AMBROSE FLEMING, F.R.S.) wrote: This paper by Mr. Stuart is an attempt to deal with some of the difficulties which present themselves in comparing statements in the Bible concerning the origin of the Universe, this earth and the living organisms on it, with the explanations and theories offered by branches of modern science of the same events.

These difficulties, so far as they are real and do exist, arise from the fact that the aims, methods of approach and postulates are different in the two cases.

Science has as its true object of research the external world appealing to our senses, and especially the quantitative relations in it. Lord Kelvin once said "Science is measurement." The implement of research is the human intellect operating in certain ways by and through experiment, observation and logical deduction therefrom. The postulate is the possibility of reaching truth by these means within a certain range of subject-matter.

On the other hand, the wonderful literature we call the Bible has certain qualities which show that it is not simply the product of the unassisted human intellect but is superhuman.

Although these books have been written by men, they contain predictions of future events impossible to man, part of which have been fulfilled exactly. But they are chiefly concerned with the prediction, arrival and work of an historic Person who was human

yet much more than human because he had powers altogether super-human and Divine, whose work was and is, the redemption of Man and making known to him the Will of God.

The aim of the Bible is then to explain Man to himself, his special origin, primary perfection, downfall and mode of redemption and restoration to an intended relation to his Creator. Man was and is quite incapable of attaining this knowledge by the use of his own intellectual faculties.

To gain truth in Science we have to approach the task without any previous assumptions and allow facts to teach us. But in the case of the Bible the truth of its statements is certified to us by the mysterious yet forceful appeal it makes to the human conscience, affections and hopes and fears of man in a minor degree by historical archaeological and linguistic research.

The faculties brought into play are different in the two cases. In scientific research they are the senses and intellect of man. In the case of the Bible they are for the most part the faculties called spiritual which are receptive and responsive and kept alive by a willingness to put into practice the truths it reveals as far as they are perceived or known.

The Bible does not give much assistance to a merely intellectual curiosity about beginnings of things or past events. Its purposes are chiefly practical and concern human conduct. The accounts in it of supernatural occurrences are unacceptable to, and rejected by many minds.

The Bible itself predicts this, for it says (1 Cor. ii, 14) "The natural man receiveth not the things of the Spirit of God; for they are foolishness unto him neither can he know them because they are spiritually discerned."

Also Christ himself said: John vii, 17, "If any man will (*i.e.*, willeth to) do his will he shall know of the doctrine, whether it be of God or whether I speak of myself."

Accordingly the so-called difficulties between Science and Religion may be very much the making of our own minds if we assume that the Bible statements have to be confirmed by, or brought into agreement with, human explanations or theories before they can be accepted as true; or that nothing is true unless it is comprehensible to the human mind and can receive a naturalistic explanation.

Up to 70 or 80 years ago nothing more than vague suggestions had been made for giving an explanation of the existence and appearance of the vast number of forms of animal and vegetable life on our earth in terms devoid of what are called supernatural suppositions.

But in 1859, Darwin published his theory of natural selection which was hailed with delight by many because it almost abolished any need for mentioning the word "Creator." Darwin himself had, however, found it was not possible to avoid its use entirely as shown by the last sentence in his book "The Origin of Species."

An intensive scrutiny of his hypothesis in the last forty years has, moreover, brought to light its insufficiency and defects. Hence-many naturalists have criticised or condemned it.

Nevertheless, there is a most extensive use of the word "Evolution" to cover and describe any processes known or unknown which can be hypothecated to account for this multiplicity of living organisms and in general exclude the idea of a Personal Self-Conscious Creator as their source. On the other hand, it has been used in a limited sense to cover a mode or means of Creation.

Hence qualifying words have been added such as "Creative Evolution," "Emergent Evolution" or "Guided Evolution."

But such terminology does not lead to any scientific knowledge and on the contrary has done much to undermine or destroy belief in the truth of the Bible.

The important question is whether the intellect of man in its present condition is capable of understanding or discovering the precise methods of Divine operations in Creation. Can we discover, for example, exactly how the miracles of Christ were effected? He converted water into wine, multiplied bread to feed thousands, created shoals of fish in lakes, cured chronic disease, stilled a storm, and raised the dead by a word.

No naturalistic explanation of these events can be given in terms intelligible to the human mind at present. We must either accept or reject the accounts. There does not seem to be an adequate basis for the supposition that these "mighty works" are merely miracles in the same sense that X-rays or wireless broadcasting would be miracles to unscientific peoples now.

The Author admits, and I agree, that it does not eliminate the

miraculous action to assume, even if true, that some secondary agencies have interposed between the Divine Will and the event. If the walls of Jericho fell down by an earthquake or Elijah's sacrifice was consumed by a flash of lighting, we are still in ignorance of the way in which these so-called natural agencies obey their Creator.

The whole of the events in the Universe of things are at every moment a manifestation of the Will of God, whether those events are part of an orderly continuance or are of an exceptional character for a certain purpose; and Science moves altogether out of its proper field in endeavouring to explain how any part of these events can take place of themselves and independently of that Will.

The paper under discussion is somewhat difficult to analyse in such way as to determine what it is the Author considers he has proved or disproved. If I am not doing him an injustice, he seems to deduce from the palæontological record in the earth that in connection with the appearance of living organisms on it there have been certain more or less sudden changes in, or appearances of types to which the word "Creation" must be applied, but that there are other series in which the changes are so gradual that the word "Evolution" in a modified sense may apply. But that the causes of these slow modifications are not known. This is very much the view held by the late Dr. H. F. Osborn, at one time head of the Natural History Museum of New York. I submit, however, that whether there has been a sudden or gradual change, the result is not spontaneous or automatic and the word "Creation" applies in both cases.

The Author administers a rebuke to some believers in the veracity of the Bible for ill-advised attacks on some conclusions of science or invalid arguments against evolution, and compares it with theological opposition in the Copernican theory. He forgets, however, that some great astronomers like Tycho Brahé did not accept that theory and that Galileo's troubles chiefly arose from his breaking his own promise not to *popularize* a theory not yet generally accepted, which he did do in his book *Dialogues Concerning Two Systems of the World*.

The opposition of religious people is not to adequately certified scientific knowledge but chiefly to the reckless popularisation of the unproved hypothesis of the automatic evolution of the human race

from animal ancestors, a statement which inevitably leads to a disbelief in, and rejection of, all Scripture teaching as to the nature, responsibility and salvation of man. The publication in illustrated papers of imaginary pictures of low-browed brutal faces labelled reconstruction of Java, Pekin, or Heidelberg "man," or of gorillas labelled "man's cousin" and suggestions that they are proofs of man's evolution from animals has worked untold harm. The embracing of these ideas by some religious teachers is an irreparable disaster and is the direct cause of much irreligion of the present day because it deprives their teaching of any vitalising power.

Lt.-Col. L. M. DAVIES, M.A., F.G.S., F.R.S.E., wrote: I appreciate the Author's desire to support belief in the Bible; but since he attacks other—and in my opinion sounder—methods of doing the same thing, I feel compelled to criticise. He raises so many issues, however, that I can only touch on a few of the points on which I disagree with him. Thus, on page 7, he emphasises as a "fact" the "absolute continuity between the fossil sequence and that of the life at the present time." How, then, could an authority like J. A. Thomson tell us that: "In regard to the origin of domesticated animals and cultivated plants we remain in great obscurity. In regard to the actual pedigree of wild species we are in still greater ignorance"? (*Heredity*, page 137.)

As a stratigrapher and palæontological research worker, I am always dealing with supposed fossil genealogies, and explained the weaknesses of this line of evidence in my paper on "Evolution" (*Trans. Vict. Inst.*, vol. 58, 1926, pp. 214–252). Apparently the author, who refers to that paper, thinks it enough to state that my "view" would appear "extreme." He makes no attempt to answer a single one of my criticisms of the value of fossil evidence, or to show how continuity can be established where I show it to be simply assumed. Apparently he thinks that "variation curves," etc., where fossil variants happen to be found in great numbers, establish universal continuity. But such cases are extremely rare, and prove no more for continuity in general than the quoting of a connected clause or two from a book would prove that that book was not divided into chapters. What is more, exactly similar variation curves can be produced in relation to man-made machines,

where genetic continuity is out of the question. And I have seen how such nicely prepared curves can collapse ; for my experience is that the more fossil discoveries multiply the more do ideas of fossil connections have to be modified. I would point out that the most experienced palæontologists are generally the most cautious in accepting the validity of fossil genealogies. "It is impossible," declares Dr. Lang, F.R.S., the present Keeper of Geology at the British Museum (Nat. Hist.), "to prove a true lineage, and extremely improbable that we can ever produce anything but an approximation to one" (*Proc. Geol. Assoc.*, vol. 41, 1930, p. 178). Similarly Charles Depéret remarked, in regard to all fossil ancestries, that: "The genealogical trees we are able to draw up are subjective to the feeling of each observer" (*Trans. Animal World*, p. 114). In other words, as I insisted in my paper, there can be no guarantee of genetic connection between any two supposed fossil "ancestors"; and so the effects of fossil evidence depend entirely upon our susceptibility to superficial appearances of proved unreliability. The Author's susceptibility is obviously higher than mine, since he (p. 102) cannot understand my refusal to accept such an appearance. In that particular case, it was as well that I did not, since further examination showed that each of the seeming links was specialised out of true series.

The Author seems to think that evolution can be squared with Genesis if we allow that evolutionary changes were God-impelled. But this device merely falls between two stools; for consistent belief in Continuity has no room for such a compromise on the one hand, and Scripture is equally opposed to it on the other. We have merely to ask ourselves how the account of the creation of Eve is to be squared with it. The deep sleep into which Adam was put—the rib removed from his side—the flesh closed up in its place—the rib formed into a woman and brought to the man, etc., all oppose the idea that human beings resulted from the simple expedient of giving spiritual powers to the progeny of apes.

As to the "gap" theory, the Author is obviously not very well informed. Hugh Miller did accept it at first, and only abandoned it on account of his dogma that a Creator could not have created the same species twice over—an idea to which Scripture is definitely opposed. This doctrine of separate creations which Hugh Miller

abandoned was still supported, nevertheless, by other geologists like Greenough, d'Orbigny, d'Archiac, Sedgwick, Agassiz, Élie de Beaumont, Barrande and many others. Since Barrande's life overlapped my own, that doctrine may be said to have continued to the present day; so it is hardly correct to suggest that it was only maintained by a half-informed clergyman in 1814. Mr. Stuart's Bible exegesis is also not very accurate on this point; and he omits to notice quite a number of essential facts which tell quite strongly in favour of the "gap" theory and against his own. Unfortunately, space does not admit of my saying more on that subject here.

Dr. E. CECIL CURWEN wrote: I feel that Mr. Alan Stuart's paper is one of the most sensible and constructive contributions to the literature of this subject that I have read for a long time. I would particularly like to endorse some of the points he has made, and feel that in approaching this subject attention should be paid to the following points:

(1) In studying the Biblical narrative it is essential to find out the meaning it conveyed to the ancient Oriental minds for whom it was written under the Holy Spirit's guidance, and for this we must divest our minds of some of our Western literalism.

(2) We must be ready to admit the observed facts of science bearing upon the origin and early development of Life and of Man in geology and archæology, while distinguishing them from the superstructure of atheistic philosophy which has been built upon them under the influence of anti-religious feeling.

(3) We must concentrate on the extremely rich spiritual significance of the early chapters of Genesis, and rest assured that if we understand this aright, the rest will in due course unfold itself.

(4) Much harm can be done by bull-headed attacks on "Evolution," which confuse fact with inference, and which to the non-Christian scientist only proclaim that their authors have insufficient insight into the questions involved.

Dr. J. BARCROFT ANDERSON wrote: If Mr. Stuart will reconsider the matter, I think he will admit that the Adam was shaped in his creator's physical likeness, the likeness of Him Who was "first formed of all formation; because by him were formed all things,

in the heavens and upon the earth, the visible and the invisible, whether thrones, whether lordships, whether virgins, whether powers"; (Col. i, 15 and 16). The first time Joshua saw his Creator, he took Him to be a man, saying "Art thou for us or for our enemies?" It is also recorded what "Jehovah" there and then said to Joshua.

As regards Adam's "*moral and spiritual nature*" the record is in Gen. vi, verses 5 and 6. "And Jehovah was seeing that the Adam multiplied evil things on earth, and every plan of design of his heart, only downwards all the days. And Jehovah was repenting that he shaped him the Adam by earth: and he was grieving himself to his heart. And Jehovah was saying: 'I will be suppressing him the Adam whom I brought into existence, from upon the face of the Adame-eh; from Adam to beast and creeping thing, and bird of the heavens, for I have repented that I have shaped them'."

Thus the penalty of the Flood was the consequence of Adam's "*moral and spiritual nature*."

Lt.-Col. P. W. O'GORMAN, C.M.G., M.D., M.R.C.P., etc., wrote: Having heard and later read Mr. Stuart's interesting paper, I beg leave to submit a few comments.

1. "Ultimate reality" is, of course, God, the Creator and maintainer of the whole Universe.

2. Religious leaders naturally depend for their knowledge of science on the accepted views of the scientists of their day.

3. But science is not permanently fixed but varies from day to day. Forgetful of this and notwithstanding that scientists are not infallible, they are notoriously very conservative of, and insistent on, their own opinions, and highly antagonistic to, and combative against, contrary opinions. So absorbed are some of them in their own ideas, and so lost in the particular pursuit of their special hobby that they begin with a possible assumption—a working hypothesis, warm themselves up to believe it to be a theory—a probability; and, too frequently, in a fog of verbosity take its proof to be granted and talk of it as a fact. It is a very human failing and accounts for much of the confusion we experience, as evidenced among evolutionists. Once involved in championing its truth, it is very difficult to crush

animosity, eat humble pie, and recant when its falsity has been demonstrated.

4. In the time of Galileo, Columbus, and Bruno, the whole world, scientists in particular, continued to maintain the ancient Ptolemaic geocentric theory, which only the insane would deny. The religious authorities, children of their age, could hold no less. Consequently when sacred Scripture, which was the inspired word of God, was temerarily assailed directly or indirectly as false, the Church as its official guardian grew alarmed and became censorious.

5. Unfortunately Galileo (born 1564, d. 1642), like so many of his kind, was untactful and perverse, jeered and scoffed at his fellows, made solemn promises and broke them, and so suffered. Curiously, his contemporary scientists, stung by his behaviour, refused even to peep through his newly-invented telescope. Altogether he was not badly treated. Cardinal Bellarmine, the greatest theologian of that age, and other theologians, intimated that if Galileo would really prove his theory, the Church would accept it and interpret Scripture accordingly. But he could not prove it, except by analogy, nor, in fact, could it be proved till further relative scientific discoveries were made some years later (Newton's *Principia* in 1696). Thomas Huxley, who personally examined in Rome all the documents concerned, declared that the Ecclesiastical Courts which condemned Galileo had really the best of the argument. As a matter of fact, Nicholas de Cusa (died 1464), many years before Galileo, had already propounded this very heliocentric theory, and it was developed by Copernicus (died 1543), who dedicated his book to the reigning Pope.

6. We are living in more tolerant times, that is, times in which the ultimate destination of our souls seems to be regarded with much indifference, and not as in days of yore when one soul, for whose salvation the God-man Christ died, was considered infinitely more valuable than the entire universes of countless myriads of material stars. Scriptural interpretations must accordingly be viewed in relation to that fact—"with fear and trembling" as St. Paul warns us, for our Lord Himself says: "what shall it profit a man if he gain the whole world but lose his soul?" Reliance, therefore, on scientific discoveries must be not absolute or final but tentative,

and their light on difficult passages of Scripture, while gratefully received, must be utilised with particular caution. Is it not the failure to observe this rule that has led the Modernists to jump to erroneous conclusions of great moment?

7. Mr. Stuart rightly insists that science is experimental knowledge and deals with facts as discovered. It has nothing to do as such with inferences drawn from them, which may or may not be right. Such speculations are in the province of philosophy. Nor has science anything to do with original or ultimate causes. It has to do with physical facts known or discovered and their logical results. Hence it is not necessary for science to assume that there is a Creator. Nevertheless, I think it will be admitted that both philosophy and revelation, together with the Natural Moral Law implanted in the minds of all men (*See Rom. ii, 14, 15*), are to act as controlling guides. Some people imagine that scientists are at full liberty to do the utmost to acquire and use whatever experimental discoveries place before them. But personal responsibility for the dangerous uses that certain discoveries may probably lead to, warns the discoverer not to make them known. Discovery of extremely shattering explosives or extremely deadly poisonous gases are instances.

8. A Miracle may be defined as the unusual supervention by the power of God, of a superior force to overcome an inferior one. It is not a violation of law, it does not abolish the regular relation of cause to effect, but it only interrupts, as a special exception, the operation of a particular effect, or interposes a superior cause. And it has as its aim a supernatural reason. God works by the utilisation of His own gifted natural laws. Hence the case of the possible coincidence of trumpet and earthquake in the fall of the walls of Jericho is rightly accepted as a miracle by Mr. Stuart, despite the fact of the frequency of earthquakes in that region.

9. ST. AUGUSTINE, one of the greatest exegetes of the Church, says: "When in the pages of the Sacred Writ I come upon anything that is contrary to truth, I judge that the text is faulty, that the translator did not strike the right meaning, or simply that I do not understand it." (Letter to St. Jerome.) We may add that when science has established a *certain* truth, it cannot conflict with a *certain* truth of faith: for God is the author of both and cannot

contradict. If science seems to conflict, then it is either itself wrong or the interpretation or application is faulty.

10. The question of man being made in the image and likeness of God suggests three explanations :

(1) As God is a Spirit, so man's soul is created a spirit. (2) As God is Intelligence, so man's soul is endowed with intellect—reason. He is a rational being. (3) As God creates, so man—a composite of body and soul—propagates his kind. Hence the express mention in one of the texts in Genesis of the two distinct sexes. Man is also an inventor and makes things. But God is pure spirit, pure intelligence, and “creates” out of nothing. Man is only a creature in the image and likeness of God, and cannot, of course, create out of nothing. The soul of man, being a simple non-composite spiritual or immaterial intellect, capable of abstract thought, independent of matter (unlike the animal), cannot die, that is, be de-composed ; and hence is immortal. And hence God alone can create the human soul, matter cannot generate or evolve it. Animals and vegetation reflect only partially their inferior likenesses to man, and hence less so to God.

W. BELL DAWSON, M.A., D.Sc., M.Inst.C.E., F.R.S.C., wrote : The Scriptures maintain that the works of God in the visible universe are sufficient evidence in themselves to make clear “His eternal power and godhead.” In what we see around us, there is thus evidence to show that there must be an intelligent Creator ; except to those whose “foolish heart is darkened.” We are further expected, when we do recognise a Creator, to be thankful to Him because His works contribute to our benefit. This implies that a Personal Creator is acknowledged, to Whom we should give thanks. All this is plainly set forth in Romans i, 20–22.

On the other hand, we cannot know the plan or purpose of God for mankind, or His Way of Salvation and Redemption, without a revelation from Him. This is made plain by the instructions and revelations which God gave to man from Adam onward to the end of the Bible.

AUTHOR'S REPLY.

My main object in writing this paper was to suggest that it makes no fundamental difference to any Biblical doctrine if the work of

Creation described in Genesis i is regarded as a series of crises and processes initiated and directed by God, and that it is these *processes* which have given rise to the phenomena upon which scientists have based the theory of evolution. I have tried to demonstrate that the account itself may so be interpreted without doing violence to the text. Indeed, the very words used seem to suggest the view I advocate. To interpret the evidence, both Scriptural and geological, in this way does not modify the fundamental beliefs of evangelical Christianity. The truths that God is Creator; that man is unique in his moral and spiritual nature; that man suffered the Fall by disobedience to God and needs redemption in our Lord Jesus Christ, remain, with all the other fundamentals. The position I have reached is one into which I have been forced by greater knowledge of attested and proved facts in my own and other sciences, but the change in my interpretation of certain of the Holy Scriptures has not in any way lessened my belief in them as the Word of God, nor taken anything from their Divine authority.

I have been somewhat disappointed that much of the criticism of my paper has neglected this side of the question, and concerned itself with a reiteration of the stock arguments against materialistic evolution so common in evangelical anti-evolution literature.

This preamble is, I think, an answer to Sir Ambrose Fleming's statement that it was "difficult to . . . determine what the author thinks he has proved or disproved." I did not set out to prove or disprove anything, but to state an interpretation of the Scriptures which had for me, an evangelical Christian, succeeded in bringing into one compartment of my brain my science and my beliefs, without altering in any way the fundamentals of Christianity. I put forward my views (not in any way new or revolutionary), in the hope, first, that some of my young brethren in the Faith, who may be in the quandary mentioned by our chairman, might be helped by seeing that the work of Creation has not necessarily been exclusively catastrophic, and second, to make a plea that only those who have real knowledge of what they are discussing will enter the lists against materialistic evolutionists. Much harm has been done to Christianity by ignorant controversy.

I agree with Sir Ambrose that the Scriptures do not need the confirmation of science before they can be accepted as true, but I

suggest that the established facts of science may help us to attain the most reasonable interpretation of scriptures which deal with the world of nature. This does not mean that miracle is put out of court, as I have shown in my paper. I cannot see how the use of any *terminology* "can undermine or destroy belief in the Bible," as suggested by Sir Ambrose. If such terms as he quotes have been used to "cover a mode or means of Creation" they indicate a step away from mere materialistic doctrine. To some people the term "creation" means only the sudden appearance of something where nothing existed before, and to many the term "evolution" means simply an atheistic theory which has been the means of destroying the faith of thousands in God, and which has no more basis for its existence than the nightmares of deluded scientists. Between these two extremes some acceptable term is necessary to describe the creative activity of God, which I believe includes both sudden crises and slower continuous changes.

I, too, am opposed to the presentation to the public of unproved hypotheses *as if they were established truths*, but I also deplore the attitude of those who, in denying the truth of a hypothesis, deny also facts which are certified as true by all who are competent in the subject.

Mr. Dewar does not guide me by giving any reference to Madam Joliot's statement, so I quote the following in answer to his suggestion that radio-active processes may have varied in rate through geological time. "The variation of the rate of radio-active generation of lead isotopes in the Earth during geological time is believed with ever-increasing confidence to be completely in accordance with the disintegration theory of Rutherford and Soddy, and to vary in no other way whatsoever . . . the nature of the evidence has been summarised which leads to the conclusion that there is nothing in the terrestrial environment—including changes in space or time, temperature or pressure changes, chemical reactions, and bombardment by cosmic or radio-active radiations—that disturbs the normal rates of disintegration within the limits of experimental error (*i.e.*, within about 1 per cent.). The modern theory of the atom adequately accounts for this remarkable immunity." (*The Physics of the Earth. IV, The Age of the Earth.* Nat. Research Council, Washington, 1931, 155.) All the evidence so far accumulated

points to the inevitable conclusion that since life appeared on earth, immense ages have passed. Mr. Dewar quotes the most destructive evidence against Pre-Cambrian fossils he can find, and his authority is willing to admit three kinds, namely, burrows of worms, algal deposits, and Beltina. Now, in addition to these, I only add graphitic capsules which may be plant remains, and sponges. Without any examination of these or consideration of the inorganic evidences, Mr. Dewar rejects all Pre-Cambrian fossils, and, arguing that if the evolution theory be true the Pre-Cambrian seas must (why *must*?) have swarmed with living things, and that rocks of that age should hold large numbers of fossils. He goes on to say that "three kinds of fossils is an impossible number" and "it is a case of many or none at all." In this statement Mr. Dewar shows how easy it is even for the non-evolutionist to theorise and not allow evidence to have full weight. Three kinds of fossils is not an impossible number, but just three kinds, and I would remind Mr. Dewar that *one* undoubted fossil would settle for ever the question of Pre-Cambrian life. Even if the Pre-Cambrian seas did swarm with life it is not at all surprising that very few evidences of it are available. The types of living creatures such as plants and worms and like soft-bodied animals would be fossilised extremely rarely, with very little chance of ever being found, for the actual outcrops of any bed are only a fraction of the total volume of rock, and outcrops of bare rock without vegetation rarer still. Mr. Dewar also says that "in common with almost every other Geologist" I "make the great mistake of believing that there is a necessary connection between the date of the first appearance of a group of organisms as fossils in the rocks known to us, and the date of the origin of the group in question." He denies, in spite of good evidence, that life existed in Pre-Cambrian times, and then, conveniently making the same mistake he accuses me of making, interprets this to mean that there was a sudden creative act in Cambrian times. He suggests also that as we know the life of Cambrian, Ordovician and Silurian times mainly by marine fossils there may have been a "rich land population during these periods." If this was so, how comes it that in Devonian times, in which Mr. Dewar recognises "a great and diversified land flora," there is not any evidence of this supposed rich fauna? We know of extensive

land deposits of Pre-Cambrian, Devonian, Permian and Triassic times. It is not until Carboniferous times that amphibia appear, and true land reptiles arrive in the Permian and Trias. Mr. Dewar's last paragraph is, I hope, the result of hasty writing and not what he really means to say. His explanation why no new order of p'lants or animals has appeared since the beginning of the Oligocene period is striking, and is to the effect that "not until the Tertiary do we know any rocks laid down in elevated regions." First of all I do not know what Mr. Dewar means by "elevated" but the statement as it stands is not true. I have listed the periods in which extensive land deposits are known, and both the Torridon Sandstone, and much of the Old Red Sandstone was laid down in lakes surrounded by high mountains. Apart from the truth or otherwise of the statement, the logic of the argument is peculiar. In effect this is, that we do not find anything new appearing after a certain time because we know little about any previous time! Perhaps Mr. Dewar is suggesting that if we knew much more about pre-Tertiary land faunas we would find that many living things which we regard as Tertiary in age would be found to be really much older. I must say that there is sufficient evidence of the time sequence of the great groups throughout geological times to deny this suggestion emphatically. Further work may show that certain groups may have begun a little earlier in time, for example, good plant remains may yet be discovered earlier than Devonian, but enough is known to have established the general sequence. The statement, too, that once a group has appeared it suffers little or no modification is not borne out by facts, as a cursory study of the Ammonoidea, the Echinoidea and many other "groups" will show. Mr. Dewar does not define his term "group" but it must be fairly wide, because in his book *The Difficulties of the Evolution Theory*, pp. 106-108, he recognises the Tertiary fossil of Eohippus as a horse, saying, "Eohippus is as clearly a horse as the pouter is a pigeon," "although it is not much larger than a fox, it exhibits four toes on the front foot, and three on the hind, and its teeth are low-crowned, whereas those of the horse, to-day, are high-crowned," and he goes on to say "when more fossils are found it may be possible to construct a true pedigree of the various members of the horse family. We shall probably find that the family is composed of several genera,

each of which begins as a pentadactyl or tetradactyl horse and suffers the loss of the lateral toes as an adaptation to environment." The whole paragraph and especially the last clause is remarkable from one who, in his opening sentences in this discussion, hopes that I shall doubt that evolution has ever taken place, for he is evidently here suggesting slow adaptation to environment as a means of creation. This is very slow "creation" and is very like what I plead to be recognised. Mr. Dewar's position is not so very far from mine after all! He evidently can recognise the Eohippus-Horse sequence despite great differences in the two end forms, and great gaps in the fossil evidence.

I answer Col. Skinner's criticism as to science being unable to begin by accepting God as Creator, by quoting from Sir Ambrose Fleming's contribution to this discussion. "To gain truth in science we have to approach the task without any previous assumptions and allow facts to teach us." This is exactly the position taken by the Apostle Paul in Romans i, 20-22, referred to by Dr. Bell Dawson. Man must first of all study natural things about him, and then as a result he is expected to come to the conclusion that there is a God who is the Creator. The order is, first observations, then the conclusion; not the assumption before study, that God is the Creator. The conclusion is, nevertheless, not a scientific one, but a philosophic or a religious one.

Col. Skinner and others raise the point about whether man's body is included in the "image." I think that the arguments from the theophanies that Christ had a body in human form previous to the Incarnation is invalid, exceedingly dangerous, and really unscriptural. We cannot argue, for example, from Luke iii, 22, that because the Holy Spirit descended "in a bodily shape like a dove" the Third Person of the Trinity always inhabits such a body. The anthropomorphic argument seems to take away much from the truth of the Incarnation, and the words in Hebrews x, 5, "A body has Thou prepared Me," lose point. The scripture quoted that "Christ is the visible representation of the invisible God" (Col. i, 15) must mean that Christ is the portrayal to men of the whole character of God. For men to understand this, the revelation must be made in terms of man's own life and environment, or be misunderstood. I would remind those who advocate these views of

Romans i, 22-23, which stresses the dangers of this anthropomorphic outlook:—"Professing themselves to be wise they became fools, and changed the glory of the uncorruptible God into an image made like unto corruptible man." The whole argument of Paul in Acts xvii, 22-31, is directed against these ideas of God. In Philippians ii, 7, it is definitely stated that He "took upon Him the form of a servant and was made in the likeness of men." This refers to the Incarnation. Col. Skinner suggests that my thesis is "playing for safety." I am not concerned with safety but with truth, and because there is a pagan philosophy of evolution we must not be afraid to change our ideas as to how the God in whom we believe has worked.

To Mr. L. E. Jose I would say that there is no absolute identity of form in any group of specimens from any one horizon. The group varies in any one character around a mean to which the majority of the specimens approximate, just as in the human species the average height is about five and a half feet, but there are also pygmies and some men above seven feet in height. At succeeding horizons in some groups of fossils the position of the mean for any one character is seen to change progressively and so the group changes as a whole in a definite direction. The group is heteromorphic in that it is a variable group but homogeneous in the fact that it is composed of a freely interbreeding community and that the members taken together form a group which varies regularly around a definite mean. I agree that the variation of such a homogeneous group in a definite direction points to some active principle which seems to work independent of competition between each member of the group.

Both Col. Davies and Mr. George Brewer raise the question of the "gap" theory which is based on the belief that a catastrophic judgment fell upon a primitive creation between the time represented by Gen. i, 1, and Gen. i, 2. I held this theory myself before I knew any geology and followed Schofield and Collett and the others. But the exact parallel between the fossil record and the written one leaves no doubt in my mind that they refer to the same series of events, and the view expressed in the Schofield Bible that we should "relegate fossils to the primitive creation (v. 1), and no conflict with the Genesis cosmogony remains" cannot hold.

Even if we allow the validity of the arguments for a catastrophic judgment before verse 2, I still maintain that the evidence goes to show that the fossils belong to the first chapter as a whole and that the days can only be periods of God's working.

Mr. Brewer again follows Schofield in suggesting that plants survived the catastrophe before verse 2, hence the command "let the earth bring forth." Again he says "in the commands for the earth and waters to bring forth that which was already in them." Does Mr. Brewer really mean that water animals as well as plants escaped the catastrophe? If such a command implies that life was dormant in earth and sea, what about verse 24, "let the earth bring forth the living creature" (no *bara*—create, is mentioned here)? As to the words "after his kind," would Mr. Brewer agree with Mr. Dewar that Eohippus was of the same "kind" as Equus? It is not necessary to believe that all living forms originated in one original cell of protoplasm. Berg's concept of many original forms of life is not unreasonable.

In reply to Col. Davies I would say that ignorance of the exact pedigree of any species of domesticated animal or cultivated plant does not destroy the evidence I give on p. 101 that the aspect of both fauna and flora in Tertiary times gradually assumes a modern aspect by the slow increase of present-day species. I agree that true lineages are practically impossible to decipher, but groups of anastomosing lineages are reasonably demonstrable. His illustration of a clause or two taken from a book is not good for his own argument, for even though it be divided into chapters, a book worthy of the name is a unified whole. The whole weakness of Col. Davies' attitude to my mind is that it seems to be based upon the belief that every fossil represents a specially created individual with unlimited capacity to migrate (to the confusion of palaeontologists), coupled with complete sterility or a stubborn resolve to remain celibate, for the members of this school of thought seem to deny the very possibility that any fossils can ever be found that can be reasonably well shown to be related to an earlier group. It is obvious that for any one fossil specimen, its immediate ancestors may not have been fossilised, but it appears extremely likely from the fossil records that a good number of his "sisters and his cousins and his aunts" were.

I think that I have covered most of the important points raised in the discussion, and wish to thank all who have contributed, for it is only by open discussion that the truth can be hammered out and our ideas clarified. I would like to thank Dr. Curwen especially, for he exactly expresses my feelings as to the confusion which has arisen in some minds because facts have not been viewed apart from the anti-religious philosophy based upon them. I feel the time has come for a restatement of the evangelical position in the light of our present-day knowledge, and feel that the Victoria Institute is a proper place from which such a restatement could come.

807TH ORDINARY GENERAL MEETING.

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, MARCH 8TH, 1937,
AT 4.30 P.M.

BRIG.-GENERAL W. BAKER BROWN, C.B., LATE R.E., IN THE
CHAIR.

The Minutes of the previous Meeting were read, confirmed and signed, and the HON. SECRETARY announced the election of Miss Francis Mary Kent and Mr. Albert Eagle, B.S., as Associates.

The CHAIRMAN then called on Major H. C. Corlette, O.B.E., F.R.I.B.A., to read his paper entitled "The Crown in England. Its Significance among other Political and Constitutional Ideas."

THE CROWN IN ENGLAND.

Its Significance Among Other Political and Constitutional Ideas.

An Essay on the Architecture of Freedom.

By Major HUBERT C. CORLETTE, O.B.E., F.R.I.B.A.

INTRODUCTORY.

THERE is a cure for all the political diseases of to-day. It is Monarchy Limited, but not unlimited. And it is not democracy. But as politics are very human affairs, said to be civil but now become somewhat uncivil, this monarchy, as among men, must be limited. It must be also constitutional. And, being so, it should proceed by counsel so as to decide by consent. There will be some divine right in this method. It merely indicates a right to do the right thing in the right way. But it establishes no right to override any personal or public, corporate, right, obligation, or duty as between man and man or men and men. If this were not so, despotism is enthroned and a dictator rides in state. And for this there is no

right, divine or human, whether in things civil, clerical, or personal, except by presumption.

But we must not look at these ideas of despotism as if they were only single-handed tyrannies. Every single unit, every man of a whole community, becomes a dictator if he, by association, tries to claim, as a right, to enforce, by the force of numbers alone, by ballot boxes, secret or not, some special privilege for himself or his class at the cost of others unjustly. A combination to represent the need for a redress of wrong may become necessary. It is a right of appeal, of petition, and a recognition by constitutional means of a lawful measure of recognised procedure. But if law is made to bend out of the line of justice by some kind of vote force, or money force, the mob becomes the tyrant, a monster of many heads from among whom one will emerge as the leader.

And there is no more inherent right divine in a domineering mass of men as machines than there is in one dominant, and equally ungovernable, man as a rod of iron scything his way through blood to power.

In the older forms of despotism the war for control was between man and man, each with his armed fighting force, paid or bribed. Now it is between party and party, people and people, nation and nation, fighting by the use of gilded force, money against money, or no money. Men are armed with gold, poisoned by propaganda, killed with gas, de-civilised by economic enterprise, depraved by competing industry, bought, body and soul, by monopolies of power, industrial and political.

These may be called persuasive forces. And such forces may be criminal in aim, and therefore not very civil proceedings. They are used as arguments of compulsion, not of free persuasion.

The first thing we observe as a significance in the Crown is this : it is above Party. If this is so, as it is, we cannot descend to Party levels in discussing its significance. But, this being so, we may claim a liberty to use illustrations to be drawn from the pictures of Party differences.

THE CROWN.

Maitland saw the Crown as a piece of metal in the Tower. And he warned us against too much traditional regard for it, as more than a legal form, a useful piece of political mechanism. Lord Balfour, with more of the philosophic insight of a vitalist,

observed in it a human bond of sympathies, a binding sentiment of personal kinship—kingship. To him the King is everybody's king, the link in a chain. Without the Crown, as he has said, the experiment of our Empire as we know it would have been impossible. It, and it alone, makes a brotherhood, a comradeship, of what must otherwise be a system of political philosophy, a written instrument of some policy of an Aristotelian kind to be analysed, dissected, or destroyed. But this Crown, as a living thing, is vital. It does not die. It may suffer decay, partial eclipse. But it may and does revive. And if the King dies the Crown does not. It is merely in demise.

And so in history it has become perpetual. And the very name, or word, of king, is significant of much. He was rex, rag, raj, roi, könig, king: the steersman. And the word meant merely father, the father of a family, his kin, his clan, his people.

And so, in effect, every president of a republic holds a form of kingship. But in England it is the Constitution alone that defines his office and function as something more: the Crown a sign or symbol of an invisible authority. It is the office, the function, and its performance that matters more than the name. And it is this the English Constitution shews. The Crown is not an institution. It is a relationship. The King is not the head of a state but the father of a corporate body—the body politic. And this is the real difference to be seen between a state which is a political institution, an operating engine of policy, a machine, and a living body of personal and political relations in the family. And so it is that a man who detests the name of king should be careful to distinguish between the person, who may be his objection, and the office which deserves respect. For if the family is destroyed the people die.

KINGSHIP.

In England we regard the office of kingship as a trust, held by a man responsible for what he does in it and with it.

That this office has been abused, not once, but many times, does not destroy the office. It demeans the King. And when we say the King can do no wrong we mean the Crown, the undying office, in a King. As a man, in his personal capacity, he is flesh and blood, like any one of us. But as King, as the Crown, he is a representative of something more than man. It is Authority.

And it is this same Authority, seen in the man, as King, that we revere. This thing, Authority, is no strange god before whom we bow the knee—one knee—not the knees. We bend on both, but not to men.

In this we distinguish between a deputy and one who is supreme. The King is supreme, with a limit to his supremacy. But in the body politic, in the things of civil order, he stands supreme. We speak of the supremacy of Parliament. But this is also limited. The Crown is supreme in Parliament as it is also in the Council, the supreme Council, of the Realm. And if a bishop is, or should be, a speaker in God's Parliament, so also is the King, but for civil and not for other affairs. Take Shakespeare and you will see his perception of the holder, the wearer, of the Crown as God's deputy, as an anointed temple, God's substitute. And this man, unlike another, does not wear the Crown immortally. He may die. But the Crown imperial does not.

And if bishops can forget the Constitution of that Parliament in which they should act, so, too, can kings. The English Constitution for civil affairs is an unwritten thing. So also was the other Constitution for different affairs. But because it is not written we cannot say it is not known. And whatever we may think is the source, the origin, of the peculiarities to be seen in the civil Constitution we use, and sometimes abuse, in England it has some curious, some strange, parallels in its invisible unwritten structure. We may trace it back through history. And we can see that the whole scheme of Parliament, in its threefold form, is built on an early Council, the Curia Regis, the Privy Council, also of a threefold form. And as all executive authority, all civil power, descends from the Crown, through the Council, to Parliament, we perceive another curious parallel.

Authority comes down. It does not rise up as if from the streets. In effect, put in a phrase, not mine, all authority is of God. There is no power not so given.

Let me try briefly to suggest this parallel. For if, as we were told, by me king's reign and princes decree justice, so, also, by the same Authority should bishops act, as subordinate ministers, under a superior Privy Council some forget to see. And if the Church is militant, it has a battle to fight to-day. But it cannot, as once it did, use the sword of state for such a purpose. It must use another Sword, invisible. And in the use of it superior direction is required.

And no Constantine, though they called him Isapostolos, equal to an apostle, as they did, also, the Russian Czars, and set him up supreme, could be a substitute for this Council under the Crown. So, too, no Hildebrand, using a Justinian's earlier support, could assume this place, as if supreme, to make his chair a superior throne as Boniface declared it was.

And this parallel, in its constitutional form! What was it? And where? In an upper room once twelve men waited expecting to receive a power promised them. The giver was absent but living. He was a Man who alone could wear the crown immortally as Shakespeare has said. Of this twelve, one had proved useless and another took his place. They were a privy council. And when they received the expected power, by the authority of which they could act, what did they do? They applied a constitutional principle. Debate arose about some widow's affairs. It had to be settled by a recognised, orderly, procedure. So they said choose, that is select, elect, seven men of some repute among you whom we—they were not to be merely elected, and self-set, in office—but, whom we may appoint over this business. This they did with good results. But where can we see any parallel in English constitutional origins?

Take this as an instance, possibly an example, perhaps a derivation; we cannot say more. Early in the fifteenth century, under Henry IV, we see a Council composed of what were then the three "Estates." Twelve of this Council under the Crown were representatives of the peers and of the clergy: nine being peers and three bishops. But the Commons were represented, too, and by seven men. And the business of the Council was to advise, inform, the King. In this form of it we see the early structure of Parliament: King, Lords, and Commons; the genesis of our Parliamentary and constitutional system in a body politic. And, as if to carry the Executive authority of this Council into Parliament, we see to-day what is called the Cabinet. Though unknown to the Constitution, or to the law, it is, as Dicey says, nothing but a committee of the Privy Council. But the fact of a relationship is seen. And we can also see, in this fact, that the Crown in Council is, by this means, transferred. And, thus transferred, it becomes the Crown in Parliament for purposes of consultation and debate.

Petitions as Bills proposed may be sent up to be considered as well as Bills sent down, as from the Crown in Council, to be

discussed, to seek counsel, before the Royal Consent is given. May we not perceive in this a method of limiting, restraining, any risk of the use of arbitrary powers? The Crown in Council appears as a brake on procedure in Parliament. And the Crown in Parliament supplies a check on the proposals of the Crown in Council until they can be considered by debate. And for the purposes of free discussion we see the need for action by His Majesty's Opposition, not any Party Opposition, equally with the necessity that His Majesty's Government should deal with proposals of Executive policy by his ministers of the Crown in Parliament.

But this is not democracy. It is Monarchy: the government of the body politic by means of one representative head of his united people among their selected, or elected, and representative men—freely elected, as Edward I himself insisted they must be.

These seem to be some of the methods by which we see authority sit at peace with liberty; and liberty stands secure in the presence of authority. Both are free because the truth, in the true use of them, is also free. We are not responsible if we are not free. We cannot be free if we are not responsible.

Responsible government means responsible men. But men who think they have a mandate from the people never can be free because they are not, and cannot be held, responsible for anything democracy dictates to them of what they shall think, or say, or do.

And so, if we wish to see the unwisdom of democracy, let us count heads, and decide by arithmetic, instead of by deliberate, responsible, intelligent, and intelligible sense. Take one instance in our chequered history. Go back to the year 1641. It may be thought of as history though it was, almost exactly, repeated, with the same purpose, by the Parliament-destroying Act of 1911. Pym's Resolution then said, referring to the House of Commons: "We are the representative body of the whole Kingdom; your Lordships are but particular persons: if you do not pass the laws we think necessary, then this House with such of the Peers as are more sensible of the safety of the Kingdom may join together and represent the same to His Majesty." This means that the House of Commons claimed to be, alone, and by itself, the whole of Parliament! It was claiming, really, to get rid of the Constitution, the Council, and the Crown. It claimed to be a

substitute for the Royal prerogative and to act, alone, as the Supreme Council of the Realm!

At this distance of time this looks, even now, as a somewhat arbitrary, dictatorial and despotic procedure. But this was not enough. They must have a Grand Remonstrance before they can get rid of every obstacle to their vaulting ambition before they fall. They are not satisfied with a civil political war, they must resort to swords. So they debate, by threat, their Grand Remonstrance.

And counting heads, not sense in them, they decide. Nine men, and only nine, plunge England into civil war. And politically the Nation was condemned to death. The body politic was consigned to dust. That was how this wisdom was reached by that vast majority with a dictator's power as an exalted democrat.

They thought, as others think, you cannot question the correctness of arithmetic if it, and only it, condemns men to death. It was democracy by numbers. Despotism is a simpler sum with only one poor digit in it. But monarchy, in its limited form, is not so easily used to defeat the common sense of men, whether they rule as a Kingly Crown, debate as Peers, or dispute among themselves the merits or demerits of measures they may lawfully oppose or approve.

And, when all this is done, it is, say what we will, the Crown in Council who decides to do, to enact, what the Crown in Parliament has very carefully considered can or should be done. That is unless the Whips have prevented a free, full, and fair discussion by worrying some too-obedient sheep.

THE MEMBERS OF PARLIAMENT.

There are three Members of Parliament. And the Crown is in each one of them. It, or he, presides in all, personally or by deputy. And if he is not present in person the symbol of that presence always is. If the Mace, the Crown, is not seen Parliament does not sit, for the House of Windsor, the House of Lords, or the House of Commons is no part, or member, of the one body of three Members we call Parliament without the evident presence of the Crown in each of these three Houses of one constituent family, one single Constitutional structure. And these are the simple facts of every-day experiences. And they make, as they show, the Crown supreme. The supremacy of

Parliament is the supremacy of the Crown in Parliament as it is, also, supreme in the Council.

And it is thus by these means we are governed by the Crown in Council. Measures of suggested legislation are proposed, with, or by, the Crown in Parliament. Any or all of these may lawfully be opposed, debated, or revised, while under consideration and before they are, by counsel and by consent, approved by the Crown as Acts and issue as enactments of, and by, the Crown. The Act of one is, so, the Act of all.

But again this is not Democracy : Government of the people, by the people, for the people. An alien and a perverting phrase. It is Monarchy : Limited, it is true, but constitutional.

It is government with the people, for the people, by the King who is the Crown, through his Majesty's Government. It is government by the Crown in Council and by the Crown in Parliament. Parliamentary government by His Majesty, the King. But not without counsel, and by consent.

From this what follows ? There is not one man, among all the Prime Ministers and Cabinets of the Empire, among all the Parliaments of the Dominions, who is a member of Parliament. They may be one, or all, members of the House of Lords, or of the Commons House : of some Legislative Council or Assembly. But there is one man who is, and is alone, a Member of Parliament. And he, too, is a Member of every Parliament in the whole Empire. He is a member of the House of Windsor. And he sits, by deputy, in every other House because he occupies the Throne. And that Throne is no mere Chair of State. He is enthroned in the hearts of all his people. And if he were not he could not keep his throne. He sits by consent, he sits by law, by custom. But he stands by the hearth in every home as a man, a friend, the father of his people, the brother of all his subjects. And he knows them as they all know him and his family. Can any democrat fill this position if he is displaced ? Can any republic be a substitute we could accept for such a Monarchy or such a conception of the Crown as this ? And it is not my conception ; it is the conception of the English Constitution. Not written, but not to be gainsaid. We prefer the style and title—A Royal Throne of Kings.

THE MACE.

The Mace may be a "bauble." But so is the Crown if you do not see the significance in it as in any sign. Cromwell spurned

the one because he was blind. He tried to destroy the other because he could not see its power still to live even though he cut the throat of a misled King. The King's advisers were the criminals who should have been impeached but not the Crown. You cannot impeach the Crown. And that the false advisers of the King must be held responsible for the counsel they give, or the acts they do, as Ministers, was seen when Strafford died. But if the Crown is ill-advised to-day would any Minister be impeached, could he be held responsible, while a rigid Party discipline makes sheep of men and drives them into Lobbies, like a pen, to vote at the dictation of the dogs called Whips? These are the servants of an under-shepherd but not of the King. They use a usurped authority he cannot, does not, and could not use if he would. And when they dictate to men, in the House or out of it, the way they are to think, or not to think, and vote, they menace free debate, they stultify free election.

Ministers and Members are in, and of, either House, below the House of Kings or of Windsor. That is, they are in the House of Lords and in the House of Commons. Parliament is an Assembly of the Nation but not of partisans. And in that Assembly the King sits. He always presides. He is the President of our National Assembly. But we call him His Majesty the King. His office is called the Crown. And the English monarchy is a hereditary, a perpetual, Republic. But it is alterable if it needs repair. He is a selected, but not an elected representative, man. He represents the whole Empire. We speak to him, he speaks to us and for us. His power is limited by law, regulated by a customary procedure, and confined by Constitutional precedents. But all these leave the Prerogative intact, a necessary reserve of power for use, but not abuse, in any national emergency. And he can do no wrong if he uses it against ill-timed, or ill-considered, or false, Ministerial advice to suppress revolt, to resist attack, or to restrain reform, if it is revolutionary in its proved aim. He must do so, for he cannot do otherwise, unless he resigns a trust, flees from the risk of a necessary exercise of his, and only his, responsibility. He must preserve the Constitution. It is not his to use or to abuse. It is the political life-blood of the Nation, the body politic.

For this reason he must be always on the watch. And, present or absent, he does preside, if by deputy, in every assembly where this body can be seen. And so, in fact, His Majesty's

Government is, and should always be, and remain, a National Government. No mixture of Party companies by discipline can make a civil regiment think and act as one in political affairs. A military body must be drilled. But drill in politics leads to a war between despotism on one side and democracy on the other.

Any man must have liberty, at will, to speak, oppose, advise, refute, approve, unless he is to surrender his independence and responsibilities into the hands of those who will dictate to him as to an item of no more use politically than a slave in chains. In war, with an army, there must always be command. In a body politic there must be no command until an Act is passed. Then it becomes a command of law in a rule of law.

And so it is that if, or when, a Member of the one or other of these assemblies speaks he addresses the Crown, in the person of the Chancellor, in one House and Mr. Speaker in another. And the fact that the Mace, that is the Crown, is seen present, and not covered, is proof that the King presides. The Speaker of the Commons House is elected by the House. But until his election is approved by the Crown he does not act. And when approved he becomes the representative of the Crown, not in Parliament, but, in the House of Commons. And he approaches the Chair preceded by the Crown, the Mace, which remains on the table to signify the presence of the King, by deputy. The Lord Mayor of London, in the sphere of Local Government, though elected, is also similarly confirmed in office by the King. The Mace, the Crown, precedes him too. It carries the rule of law down to the levels of the street from its position of a limited supremacy in the King, and from an unlimited Supremacy above the Crown.

And, as if to impress us with the value of its significance, this symbol we call the Mace has been much in evidence in recent days. Cromwell's ignorance concerning it is well known. But not long since a Speaker in an Australian House removed the Mace from the House in which he sat as a useless relic of the past. He forgot it was the present sign of his own office and authority. And by removing it he meddled with the function of the Crown and deposed himself. Again, in the House of Commons, a little while ago, a Member, not of Parliament but of the Commons House, thought he could remove the Mace. By his attempt he tried to exclude the King as President of the body politic, the English Royal Republic, and a Royal Monarchy.

When his late Majesty King George V with the Queen met the whole body of his people, as one, by their representatives, in Westminster Hall in 1935 there were two Maces present: one was the Mace of the Lord Chancellor, as Speaker of the House of Lords, the other was that of the Speaker of the House of Commons. They were present but not to be seen in the presence of the Crown. They were covered because the King himself, in person, was present, and, presiding. No deputy, and no symbol of his capacity to act was then required. The Crown, the reality, was there. And then, later, in the same Hall the King had passed away. The Crown had suffered a demise, a new King reigned, and the Mace was present again, covered, but this time draped for the King who died.

HIS MAJESTY'S OPPOSITION.

The idea of a lawful Opposition embodies a political and a constitutional principle of the utmost value and importance. It puts into the public debating assembly we call Parliament a capacity to use, in a corporate way, the only rational method by which to analyse ideas.

In Germany to-day, as in the times of Frederick, misnamed the Great, opposition in any political sense of deliberate, legal, discussion of differences is now, as it was then, impossible. There was, as there is, no middle way between rebellion or surrender.

His Majesty's Opposition is as important a part of our Constitutional structure and procedure as His Majesty's Government. The main difference between these two essentials is that the one may use executive and administrative authority but not the other. Both should be constructive. His Majesty's Opposition does not exist merely to end His Majesty's Government, but to mend or amend its measures before they become Acts.

But of what use is any Opposition if it is always drilled to oppose? An Opposition is not meant to be a tool of revolution.

An executive Government, acting as His Majesty's subordinate Committee of His Majesty's Privy Council, must submit to, even invite, critical opposition by debate or it can seldom, if ever, succeed in a necessary process of selection and elimination among its several proposals. If such a Government forces its supporters to become its obedient followers it defeats liberty by

enthroning a despotism. If its supporters may never be its opposers for fear of earning its displeasure the reign of liberty is ended, freedom is already dead and buried, and the dry bones of Cæsar are alive again ranging for revenge and ready, eager, to use his dogs of war as his snarling, yet cringing, curs.

The Bill for the misgovernment of India has become an Act of despotism by this sort of procedure. The strains of democracy are seen in it as the realities of despotism.

THE GREAT CHARTER.

After the Great Charter was secured by the barons with the aid of the bishops, it was a king who declared that election ought to be free—nearly seven hundred years ago. If the Commons destroy the Lords by the exercise of the provisions of the Parliament Act their liberties which, under Charter, are also ours, must disappear. For in that Charter there is a provision to secure its continuation, and its observance. But the barons, and the barons alone have any right, in law, to guarantee this security against the possible, if now improbable, encroachments of the Crown. And there is, in it, a guarantee for a similar security against the arrogance of a House of Commons which usurps to itself the functions of an uncontrollable Council of State as a substitute for the Crown in Council as well as for the Crown in Parliament.

This means that an aristocracy, as it is understood in the English Constitution, is a safeguard and a defence. It is not money. It is not nobility. It is our security. But if its dignities are surrendered or wrecked, its capacity for independence assailed, by a political robbery of its position, or its necessary wealth, to be used for the welfare of the body politic, then we are at the mercy of any rich adventurers who can handle gold to reduce our wealth at will for their own purposes. And to bribe, disrupt, and destroy, King, Lords, or Commons as they choose. And all this can be done by taxing them out of existence so as to make us the helpless slaves of those who wish to be their substitutes and to use an arbitrary power.

But if this English King insisted that freedom of election was the essence of free institutions, if liberty is to be preserved by constitutional defences, we have cause to think. We think of those who were called a King's friends as the enemies of the

people, of the Nation, because they used intrigue. They interfered with the right of free election and, in the case of Wilkes, expelled a Member duly elected for Middlesex. And we have lately seen the Party system apply its engine before a poll to secure the election of its nominee as Member for Ross and Cromarty.

If such things are done, such things permitted, we can see the truth Hobbes saw that the State is a great Leviathan. But the English body politic is not. The abstract image called the State is the breeder of impolitic despotism. The body politic is a living Constitution and should be, as it can be, a very happy family. Democracy is the parent of such dictation. But kingship, monarchy, as it might live in England, is the father of one united family.

CHURCH AND STATE.

It has been suggested that kings are as much the authorised, the appointed, and anointed, temples and ministers of a superior Crown as any bishop, parson, priest, presbyter, or what name you like. But as for bishops attempting to govern kings, government, in this aspect, is not their legitimate business. For, in any case, they are to be concerned only with local affairs, within their proper province. They are under a Crown in Council, not the Crown of State with a Sword of State. But they are under that invisible Crown Who was present, with His Privy Council of the Twelve, in an upper room many years ago. And they, by this governing of theirs, administer—they do not make, they have no authority to make—any law.

Here we may observe a parallel illustrated by the other unwritten Constitution already mentioned. They are concerned with spiritual affairs. This is a scheme of Monarchy but not democracy. It is most certainly no despotism because it is concerned with a faith that is meant to make, and to keep, us free.

We appear to have stumbled, as if by accident, upon two parallels of unwritten constitutional relationships, for such they seem to be. On one side we find a Crown in Council and a Crown in Parliament. On the other we perceive the Crown, superior, in Council, and also this Crown in consultation with a subject people. The idea of family, as of father, brother, son, is seen in both. And each appears as a somewhat vital thing and no

abstract philosophy. One is a body politic. The other a spiritual body. But both are composed of living, active, thinking men and women. It suggests that the physical, intellectual, and spiritual constitution of man can be, in fact appears to be, reflected in his political, as it is in his other, affairs of corporate action. And, as men were not produced by pen and ink, we may suppose that the really essential qualities of being in any body corporate of their concern should in some way follow precedent. But it is not a despotism, and it cannot be democracy. It is a Monarchy, and, Constitutional.

LIBERTY : A LAW.

Some correspondence appeared a week or two ago. It dealt with Theology and Science. Why these two bosom friends should be supposed antagonists it is difficult to see. And why Theology and Politics should be made a mingled, a mongrel, breed in things of the science of government it is equally hard to discover. Government, like a few other things, begins at home on the hearth, in your house, or in the House of Windsor. It is, first, a personal affair. Self-government, if it means anything, means govern yourself, be your own governor, before you try to govern others. And in governing yourself govern by law, not by pretty opinions not given as law. Don't lay down the law ; take it up and use it. Don't argue about it too much before applying it. Try it. See if it fits your case. If it challenges your liberty, your freedom to do the right thing, the true thing, and lets you do a dirty thing, something has gone wrong in it or else in you. But don't govern others before you do some governing nearer home. Self-determination means determine to do something about yourself before you try to get busy with a self-assertion in matters not your business. Any government that pretends to interfere with the liberty of the subject must be wrong. For all government exists for no other purpose than to preserve liberty as a possession, as a thing provided by, and subjected to, law. There is no liberty without a law. And that particular law is called the Law of Liberty. The object of it is to make and to keep men free. But without this law they are not, cannot be, never were, nor will they ever be, free. This law, like so much else, begins as a personal concern. It rises upwards through the applications of private experiences. And you cannot know its uses, or understand its value, until you try it in

the simple business of your own individual affairs. It begins on fact—yourself. Proceeds to grow by facts. And there is no end of the fact of the superiority of law, the supremacy of law, the rule of law, this Law of Liberty under which no licence is allowed for the very simple, and the only, reason that licence is the enemy of this liberty. The liberty of you and me to observe, in freedom, a law of subjection, is the liberty of the subject. This is a personal matter. And it is not a philosophic theory of politics. The strict logic of fact, in action, is stronger, deeper, far than the logic of thought that proceeds without regard for the law of the Mind of Life, that enables you to think.

All this looks like reducing the English Constitution to its simple elements. It is just like a living man, and nothing else. One body, politic of course, with a head, the Crown. Many members whom the Crown consults and who advise the Crown, sometimes rebel against the Crown. Paralysis of the brain, or of the hands and arms, means constitutional derangement or decay. Health depends on all functions operating in their place. The mind can be over-fed and the body too. And there is no doubt, in fact, that this life must be derived from a Crown that does not die and is never in demise. It is everywhere present, by deputy, or by some symbol, or a sign. It needs no argument to prove its existence because it is an active fact, a personal, and a living, simple, fact: A Man: The Man.

TAXATION.

To-day the use, the abuse, of taxation as an engine of party policy is being exploited as a crushing implement. It is excused as a necessity. It is as daily bread to the nation and people, that is the Crown, the King, as representing them. But to use it as a weapon by which to coerce any particular section of the community, any one Estate more than another, is to abuse its use and aim. The possibility of such misuse need not be discussed. We should by now be able to see that if it is a virtue to defend the poor it is vice to rob the rich. The virtue of it is defeated by the vicious intention. Speech and action too often show plainly it is there as policy. Money is made an irresistible persuasive force by reducing our capacity for Constitutional resistances. It has been, and is, used to buy support by a Party seeking power. Men sell themselves to buy this support. They make

an unworthy trade of professing insincerities. The Party in office, and the other, or others, out of it, bids in the auction against another, the prices rise, and the people are compelled by such politicians to pay their competing bills. As a free grant in aid to the Crown, to the nation, such proceedings have no warrant. They should be impossible.

The days are past when appropriation by the Crown, alone, as an incipient, or actual, dictatorship was possible. And ministerial responsibility can no longer escape the rule to render an account. But the account does not, as it cannot, hide the appropriations by Party to pay for votes in its own support. One Party for the benefit of its own supporters and the strengthening of its own position proposed a Bill and carried an Act to pay its members. It bought support, and favour, by paying all. And it did so without reference to the people who, at the Party bidding, are compelled to pay. And this because the "other House" by a false and unsupported plea of "privilege," as Maitland shows, are deprived of any right, or power, to revise, or to reject, such Bills permitting this impolitic robbery. And now, by financial measures, and by administrative decisions, members of the Commons House support themselves, secure their political positions, by neglecting the defence of those they are supposed to represent.

In those days when each "Estate" of the Realm was separately represented, and taxed itself, there was some reason for the defence of a "privilege" that claimed freedom from the influence, or decisions, of another. But now when all are taxed together, as one, and many are taxed vindictively, things are different. The Lords, as a House, an "Estate," are taxed by the Commons House, another "Estate," to pay for the support, the need, the vagaries of, and the votes secured by, the Commons. But as this is done by Money Bills the Lords, as a House, or the rich as members of the one commonalty of the Realm, have now no redress. They are compelled without consideration, without consent, to provide exorbitant "Supply" demands not exclusively for the use and benefit of the Crown, the Nation, as above Party, but for the advantage, the benefit, of those who paid themselves by "privilege" out of the public purse, and now buy votes to secure a seat, by policies invented to create popular, and Party, division on which to rest Party power.

Cromwell, our early democrat, climbed, not too easily, the

ladder of dictation and reached the top. And there he sat : a despotism. There was then no money in the business of professional politics except, possibly, this : Members were sometimes paid to serve when there was little or no competition to secure a seat and to gain a salary. But if, or when, they were paid to serve the body politic, the " Estate " of it, in which they lived, they were paid, not by themselves, voting themselves the money, out of the public purse ; they were paid by those who respected them, knew them personally, well, as reliable and responsible representative men. Their services being worth securing were worth paying for. And because it was a costly affair to leave a shop or farm, or any business, they owned and used as a stake in the responsibilities of life beyond mere talk, their constituents themselves, out of their private purse, paid the bill. They gave them as much as two shillings a day until, in Cambridge, one shilling was considered quite enough. These people taxed themselves, by their own consent. They were not taxed by their Members, without consent. We see these huntsmen now running before the hounds of democracy to win their spurs, and eat their words, afraid of the pack, and without the courage of a decent fox.

The purpose of taxation, in its origin, was to defend the nation. Now it is used to spoil the people, despoil the rich, pauperise the poor, and to debase, if possible, the paid politician. Once it was a free grant in aid of the King's purposes and necessities. Often it became an arbitrary exaction. Sometimes it has supplied, and properly supplied, the needy poor with a sustenance of which they were deprived by the incapacity of their paid representatives in the House of Commons or their hirelings in office. And ever since a member of the House of Commons advised a modern Pym to use it to destroy the Constitution, by confiscation in a People's Budget, by weakening the powers of resistance secured in the House of Lords, by depriving the landed proprietors of their possessions, and the villages of their best friends, the power to threaten our liberties has grown as the bulk of budgets has risen. The word wealth does not spell iniquity. A tax should be demanded, as it should be paid, to preserve and to defend our liberties, not to make it serve as a means of robbing us of these, and depriving us of all freedom to resist a political tyranny in taxation designed to support a new despotism.

A NEW COUNCIL OF STATE !

If, as we were told a few short weeks ago, the House of Commons is becoming, has, in fact, become, a new Council of State the Nation must be in danger of disruption. This new arrival can be no welcome visitor. It must be another of those good intentions paving the way for some policy and leading where none of us desire to go. Councils of State suggest executive authority. But is this one, as others have been, likely to remain subordinate ? Or is it to suppress the Council now supreme—the Crown in Council ? It might talk reform. But if it attempts to touch the structure of the Constitution its remedies would mean revolution. And, as we now stand, such remedies may be tried by, as they are invited from, any Party adventurers who hope to use the provisions of the instrument miscalled the Parliament Act. It is the ghost of a resurgent Pym in another Denmark. Its aim was, and is, to remove a safeguard and to reduce the Crown so as to provide a Commons substitute for both. It was not, and is not, a true Parliament Act but a House of Commons Act, the result of threat and force. A new Remonstrance Bill. Adopted, not approved : and not by nine Commons but by seventeen surrendered Peers. But its terms defeat its own provisions, for though it is, itself, an Act of Parliament, no Act, by its operation, can be an Act of Parliament under the Constitution. Parliament is destroyed, as it must be, by it, if its procedure is to be followed. If Parliament is King, Lords and Commons in Parliament assembled, then an Act without the counsel of all, the consent of all, and the assent of all, confirmed by the Crown, cannot be enacted as an Act of Parliament. The House of Commons is not Parliament. It cannot usurp either the name or the functions of Parliament again, as it did in Cromwell's day. Then it was revolution with civil war in its wake, an unpopular affront to every national interest and security. Do we ask here for Spain's experiences ?

Under the Stuarts, as under some at least of the Tudors, the Crown was abused, misused, for despotic purposes. Such purposes, in England, have been always of foreign origin, not native, not natural, to this island soil political. Henrietta Maria, in her person and derivation, was sufficient evidence. She came from Versailles, like other importations. And she was born a Medici extract with a Jesuit following. And, a little earlier, Mary, the mother of James, carried a similar influence and strain to

Scotland. Cromwell had reason enough to resist the King. The mistake he made was in trying to remove the Constitution by destroying the Crown. If the Crown is ill-advised the King's ministers do wrong. The dictum that the King can do no wrong means, not that a man cannot make mistakes but that his ministers are held responsible for bad advice in Constitutional affairs. And the purpose of these methods is to save the King and to preserve the Crown. But they provide no reason or excuse for a revolution, in the name of reform, that would allow a Rump of the House of Commons to call itself Parliament by excluding the Lords and executing the King in an attempt to remove the Crown. The King died in Whitehall. But not the Crown. It does not die. It suffers a demise. It is perpetual. It is the single permanent executive, the sole safeguard, if all the rest of the Constitutional structure is shattered. And in it, by it, the whole may be, can be, has been, revived.

The Prerogative remains ■ power. It may rest unused. But it is in reserve for any and every purpose in emergency. Why? Because if Parties lose their heads the head of them cannot lose his. They may go; he remains. He is above Party. He is not concerned with ideas of Party but with the welfare, of the Nation, the Empire, as one constituent structure, indestructible as ■ living body politic. It is thus that in the Crown and, ultimately, in the Crown alone our liberties and our freedom can be held secure. It is thus that from the Crown in Council, the Privy Council, all Executive authority still flows.

THE AREOPAGUS.

The Areopagus when it was addressed by Paul was, like the present House of Lords, a mere relic of its former value. It had been reduced by republican democracy, despoiled by despotism and subdued by Rome. As the only remaining shadow of what it was, it still contained all that was left of the traditions of a Greek imperial Council as the support of an early Monarchy. From that King in Council their Assembly was derived. By the time of Pericles it was under duress. In the day of Alexander it was submerged. Philosophy, as represented then by Aristotle as his tutor and camp follower, had displaced the living, customary, sensibilities of Greek thought by Party strife or family intrigue. And the three advisers of this conquering

hero talked to him in the language of the three friends of Job. They were as useless for any real purposes of reform. The democrat despised the despot and the despot abused both the democrat and the fatalist. But when Alexander murdered Cleitus he adopted the dictator's role and put himself above all law. And then he saw decline. In Egypt they acclaimed him as a god and the birds of ill-omen pursued, or led, him along the Nile to receive the adulations of a degraded priesthood that bowed to power because they hoped to keep still longer a little of their riches, their influence and their place.

But there never was a real democracy in Greece. And when a second, a rival, Council of State was set up the Areopagus, and all it might have been, gave place to sham democracy. The insincere Philippics of Demosthenes helped decline, and then a despot put his heel on all.

INDIA.

In India to-day we see incipient democracy at work. People are being told how to vote before they are taught to read. And the difficulty is got over by voting by ballot, not as in the very wise West, now decivilised by democracy, but by bicycle. They are urged to vote as those who are told to suppose an umbrella is a man. They will soon begin to see that responsibility at the centre must be centred in the King. Responsibility cannot be dispersed. It rests in monarchy because democracy, by its nature, means irresponsibility. You cannot hold a million responsible as you can one man.

It is only by this new evidence from India that the peculiarities of Western, or very far Western, democracy can be demonstrated by proofs not even philosophers in politics can be so unwise as to repudiate. The phrase "gone west" is therefore full of meaning. In the days when, say in Egypt, it meant the sun was setting it was understood; it was the light that failed. So now we see it means decline, a political philosophy of moonshine.

The Princes of India still support the Crown because they see in it their sole security. They hold, and should hold, the word of kings to them as something they can trust. In it they see responsibility as a personal being rather than as an impersonal theory. A pledge in few words, given by a man, is worth more than a Bill of rights quite untranslatable into modern

Sanskrit, Hindu, and hundreds of other tongues as the Act of the Crown as King.

Such words have meaning. But who can unravel the mystery of policy hidden in pages by the thousand, and words by the million to explain an Act without parallel in history? Is it not a surrender of Monarchy, the repudiation of responsibility at the centre of the greatest Empire the world has seen? The heads of the Indian States may yet save that Empire from disruption. They hold from the Crown their own limited sovereignty. They look to the Crown as their superior Authority, itself limited in its turn. If they refuse to surrender they may yet prevent a greater surrender. If England resigns the Crown to the impotence of democracy it will be not a demise but the death of sovereignty. Such matters are, and should remain, like the Crown, above party.

It is a simple thing to teach people to support the Crown, the King. The symbol they can understand: the person they may know and respect. But the Constitution is in the Crown. No deep, legal document but a personal affair, a man in authority.

We can see already the Party system rapidly developing in India. It will soon show us as many political divisions as there are races, as many sectarian differences in politics as there are religions in belief, as many disputes about those differences as there are separations by caste in the social scale. There is at present no single belief that can give them a unity of co-operating thought. And into this whirlpool we have thrown a bomb. It goes by the name democracy. And it alone was the tool that forged that bulky document called the India Act. The one single, central, governing idea of that stupendous Act is this, that democracy is the only road to liberty. That major premiss has not yet been proved as truth.

In the theatre of politics this is to forget the powers, almost of an Ariel, in the Crown and to resort to the use of those faults of Caliban, derived from Sycorax, and therefore not all his.

And so, if the Princes of India value their present guarantees of security, in grants of liberty, they will save their states and preserve an Empire by refusing to be seduced from their old loyalties by a far Western, and Republican, Democracy. They will see Monarchy as it can be, and is to be, seen in the King, and in the Crown, as a living Constitution able to succour the life of their teeming millions they can and we must help.

U.S.A.

In America they have one Chief, a Monarchy, not Royal. It is limited, but rigid, not flexible as ours. Their Constitution is a written document, but ours no man can touch, because it is invisible. It is seen in the Crown but manifest in the person of a responsible, and a perpetual, man, the King.

And this Republican Monarchy of Democracy in the West is perhaps changing its coat if not its spots; they say it is not so rigid as it seemed to be.

Hamilton's theory with Washington's experience, combined some aspects of political philosophy current during the dim past of the eighteenth century.

The structure of this American Monarchy, Republican and Democratic as it is, would be an interesting comparison, an illustration, of completely different political ideas to those in England we have been considering. They are the product of political theory, ours of long political experiences. They concern the fabric of a State, a political machine. Ours is not a State but a living body politic; a very human thing. Bryce examined the American political institutions when full grown. But De Tocqueville saw them in the nursery about 1830. And he had an analytical vision, for he predicted much in what we see to-day.

His critical vision taught him, too, to see, as he said, that we should consider not only the men concerned in great affairs but study also the movements that give them power. Canning saw the need for this. And he said, in 1826, that the next war would be one not so much of armies as of opinions.

De Tocqueville said, "We live in a democratic age, and a society in which individual men, even the greatest of them, count for little. At such times it is not the man we must look at, but that which raises the man and brings him into power." Democracy, in his view, has no true love of liberty. He saw in it, as its motive power, the political philosophy of a more modern pantheism against which all who value the true greatness of man should struggle and combine.

But when we are told by a minister of the Crown, as we were not many months ago, that to fail democracy was to blaspheme the Holy Ghost, we may begin to realise the truth of De Tocqueville's words. And the time has come to combine against this new, yet old, religion of pantheism, in politics democratised.

He said that among almost all Christian nations of his day religion was in danger of falling into the hands of the government. It did so fall, under the despotism of Constantine. And, by claiming a civil supremacy, Boniface showed a change of method but not of principle. Henry the Eighth altered the locality of its application but not the idea. And it is this same concern of civil government in the affairs of a different Government, not of bishops alone, that is the root of difficulties we see all round us now. But, like many diseases, the seat of these is constitutional, not physical, and not mental so much as psychological, as philosophers might say, or spiritual.

For, as many begin to see, it is in the spirit of man, deranged and unfed, we may seek for the cause, the origin, of much paralysis of a corporate, a personal, and social, as well as a religious, or political kind. That politics has become a disturbing element in religious affairs and religion in those political none can fail to observe.

If the story of Jeroboam means anything, and it must mean much, it shows rebellion carrying religion into politics, as a serving slave, and, destroying both—by despotism—and, too, democracy. The people approved what the King proposed, those strange measures by which he secured a throne. His name means many people. He was an industrious rebel. But his rebellion was not without some reason. Dictation in the southern Kingdom bred it. And no lawful Opposition, as with us, was allowed to support a reasonable reform. Instead, there were threats—of scorpions and of whips.

Constantine, with less reason but the same purpose, copied Jeroboam when he used the consenting, and subservient, bishops to put the things of the Church under civil control. And Justinian reversed the process when he, in turn and by decree made it possible for bishops to claim as a right that kings should rule only by their consent and as their subordinates. This gave Europe Boniface, whose vain boast Bryce records: "I am Cæsar." If so, he claimed too much, for Cæsar was a pagan god.

Becket served two such masters, one after the other. First the King in a civil capacity as his Chancellor. Then he served a superior, as a bishop at Canterbury. And in this, his second capacity, he necessarily opposed the King whose servant he had been but whom, now, he regarded as the subject of his new master, a Cæsar in a prelate's robes. Wolsey was less wise.

He tried to serve both worlds and two masters at one and the same time.

But Wolsey did not fall, like another, for telling the unpleasant truth to a Herodian adulterer. He supported a debased and a degraded King, the enemy of his realm, and the enslaver of his people, the Defender of a Faith that he defied. And he built the foundations of a Star-Chamber despotism in which the Stuarts lived until Cromwell, as a dictator with an army behind his back, pulled down this instrument of ■ civil tyranny.

So may we not see that Cæsar disguised as a priest, or a priest on ■ Cæsar's parade, usurps an office and confuses two necessary aspects of one purpose. What business have priests to meddle in civil affairs? Had Cromwell any right to preach if bishops and priests, in his opinion, had none? They were at least ordained to teach. Was he anointed by nine votes in the House of Commons and sprinkled with English blood? And, again, what right have kings to interfere where priests, alone, should serve? It means confusion and destroys the truth that both are necessary in their several spheres in which it is their business to mind their own business and no other. And a king, in his civil capacity, is as much a minister for civil affairs under this supreme law as any priest in other matters. The jurisdiction is distinct. Princes may decree justice; it is for that very purpose they hold their office. And any priest, by his priesthood, without priestcraft, should be able to explain the application of truth in justice to any king and every man. He, too, is there, and for this very thing. But not for politics except as a man, a citizen, not by virtue of his office, his ministry. It is not in the Constitution of the King under whom he serves as the supreme Crown.

DE TOCQUEVILLE.

I have referred to De Tocqueville as to an authority on the inherent trend of ideas in Democracy, because he wrote of it as he saw it developing in America one hundred years ago. He therefore speaks without the bias of any more modern enquirers who seek to know its tendencies. But what he said then we see now exhibited. "The notion of a sole and central power which governs the whole community by its direct influence, is natural to a Democracy . . . To governments of this kind the nations of our age are tending. In Europe everything seems

to conduce to the indefinite expansion of the prerogatives of government." And an American examination of the same political ideas, written forty years ago, shows another perception of the inner meaning of this political notion built on philosophic theories of the State and of government. Let me quote :—"We may here note that a Democracy, looking upon its leader as its representative, willingly gives him a power even greater than the largest measure of his prerogatives. The sovereign multitude, which sees in him not so much the ruler who commands them as one who is the exponent and executor of their will, yields to him such a full and unreserved obedience as no mere despot can obtain. No Alaric or Tamerlane, at the head of his hordes, is so truly master as the recognised head of a Democracy, which sees its favourite beliefs embodied in his person; and to the power of modern discipline in its armies under his control adds the zeal of a passionate, personal devotion. Democracy, headed up in one who can sway its forces, has such elements of aggression and strength as no form of government hitherto existing has had."

It is therefore desirable that we should try to see, not the men alone, not the figure-heads, but to read the meaning in, or behind, the movements that give them power. And it is with this view in mind that we may discover the meaning of some electoral methods and results, American or English, and also enquire for the peculiar reasons of a political, or a semi-religious, and racial sort by which the more recent Italian and German notions of constitutional theory may be explained. And whatever differences in detail we may see among the conditions in Russia, France, or Spain, we discover a strange mixture of kindred elements, the foundation of which is some variation of democracy hunting for power and a usurped authority. And out of this, out of all these—as in the first French Revolution, and when Napoleon the President made himself Napoleon the Third, and an Emperor, until Sedan—the inevitable leader comes.

Democracy is a stepping-stone across the stream of civilisation in which the steppers stir the mud. Or it is a mounting-block from which some new Colossus gets astride and learns to ride rough-shod over all the fields of liberty.

GODET.

This suggests a reference to an observation by Godet of some importance, if we are to consider the different aspects of political

tendencies; the movements that give men power, produce the particular man, and elevate him like a Cæsar. And it matters little if he is called by such a name as Kaiser, Czar, President, The Leader, or Il Duce. It is his position, the movement he represents, and the purpose, the aim, of it that is of interest to us. He may be a popular idol of a Popular Front, or he may be another kind of offshoot of the growing weed called popularity like a budding or a full-blown Democrat. But with religion, as we have seen it, getting into the hands of Government, and when a Government, of sorts, attacks a religion that deserves respect and tries to foster another, built on hate and anarchy none can approve, then we may be excused if we draw attention to what Godet wrote some forty or more years ago. He was considering some aspects of the battle of political opinions mentioned by Canning long before. He said, "Antichrist's theological system may be summed up in three theses. There is no personal God without, and above, the Universe. Man is himself his own god—the god of this world. And—I am the representative of humanity, by worshipping me humanity worships itself." And so if we are told that the result of votes on bits of paper in a tin ballot-box is the Voice of God, the Holy Ghost, and that it is blasphemy to resist Democracy, it is time not to think but to act.

The function, the purpose, the aim, the policy, behind democracy is to turn the earth upside down or the world inside out. The stomach deranged with political indigestion is to displace the head in government, to argue, by commotion, against the rule of sense. The winds of a modern Æolus, as Canning saw and said, were to be the cause of a coming storm and strain. The body corpulent was to beat the brain completely out of the body politic because its Constitution was deranged. If, in your minds, you ask me of what use is all of this, how does it concern any constitutional idea, any polity, any purpose, design, or any fixed policy that affects our personal prosperity? Can we not reply, with truth, that so largely to-day money rules policy, cash governs votes, gold is used, and abused, to ruin kingdoms, to wreck civilisation, to support democracy, or to foster anarchy, in opposing not only human Monarchy but more—to resist the prerogatives of One who alone wears the Crown immortally. And let me say it here again that a prerogative is a reserve of power. It is necessary for many emergencies, but though it may not be used, or is seldom made to operate, it remains so that

it may be used, where it must be, for special purposes. It is a last resort in reserve to protect the commonalty from any opposite and usurping, power that claims a superior authority. It is a protector of freedom from the menace of despotism, it is the last resort for the security of liberty—our civil liberties, our personal, individual responsibilities—from the threat of some dictatorial upstart power, whether it is seen as a very superior man or as a multitude of ballot boxes filled with paper votes.

POLITICAL VISIONS.

Napoleon had used religion as his instrument, his orchestra. It is being used as an engine, an implement of public policy to-day, in ways obvious to all. And because of this it is well to try to see what difference there is between the function of those whose ministry is required in ecclesiastical or in civil matters. De Tocqueville said the notion of a sole and central power which governs the whole community by its direct influence is natural to a Democracy, to the indefinite expansion of the prerogatives of government.

With us the Crown is our last civil refuge and security. And some desire to wreck that too by a political rebellion against our liberties, the aim of which is called reform, means revolution, and is bent on smothering freedom.

Ministers of the Crown receive a mandate to carry on the Government of the King by using the powers granted them by the Crown. They receive no mandate from the people that gives them any power. And they can accept no mandate from a League that seeks peace by threats of war against the sovereignty of the nations it tries to subdue, by menace, while it carries an olive branch like a dove.

If the words we read or hear are still signs of thought most of this must be true. For the League may threaten to use force to compel obedience to its whims. But, it commands no forces. It issues mandates without a compelling power. It uses an air of authority and possesses really none. It talks democracy and devises despotism: advocates freedom and menaces liberty.

France is a member of the League and plays with it. Russia is now a member of the League and uses it. Italy is a member of the League and laughs at it. Germany was a member of the League

and keeps it still at bay. America supported it and ran away for the Senate was afraid of it. Abyssinia was a member and suffered for it. Great Britain is not, and never was, named as a member of this League. But she is made its obedient servant and pays much for supporting it. The British Empire, with the Crown in Council as its only true suzerain power, is made ■ member of the League. But because it receives mandates from it and reports to it, through those Dominions named by this new Covenant, it becomes ■ subordinate of it. And when these things were arranged by ministers of the Crown, outside Parliament, without Parliamentary debate, no man was impeached when the deed was signed, and we were duped like this.

President Wilson told us in 1919, he saw a vision. He said he saw the American spirit had conquered the world. This must have been the spirit of democracy. And that spirit must be the spirit of man in men, the spirit of pantheism. We see it ranging the world to find one only man, another Cæsar, to be its Colossus, and its god. Religion, as in Imperial Rome, will be part of his "machinery" of government. The possibility of setting up this god in England, by the grant of administrative authority for the use of present and future ministers of this coming rule, has been well examined and expressed, from its legal aspects, by the Lord Chief Justice of England in his book, *The New Despotism*.

Let me suggest a brief comparison. Consider these dreams and visions of political philosophers. They show the state of the weather or the digestion, mental and otherwise. But there seem to be more signs of health in the open-air experiences of a body politic which has been in exercise for perhaps ■ thousand years. It has framed a free League of Nations recently. And it interferes with the liberties and the prerogatives of none. In bulk it is but a mere fraction of the India Act. And it shows the vitality of Monarchy in contrast with the creaking heaviness of the tumbrel called Democracy. This deed, or document, is the Statute of Westminster, 1931. It removes the Dominions from the jurisdiction of His Majesty's Government in Great Britain. They are no longer subordinate to it. These Dominions are given direct relations with the Crown in Council in the same way as His Majesty's Government in England. And so the Crown in Council is now seen supreme as the sole central Executive of the Empire. But it operates, for all Executive and Legislative purposes,

through the Crown in Parliament in each different Dominion. And it does so by means of His Majesty's Government of either Dominion through the Dominion Cabinet, as being, in effect, an Executive Committee of the one central Privy Council of the Crown. There is local liberty and responsibility with a central Authority and also responsibility. There is a freedom of action in all. There is no Executive action without consultation, no decision without advice; counsel is required before consent. And so the fact stands out. The Crown in Council is supreme. It acts, and enacts, through the Crown in Parliament assembled. And it is a family affair. But it suggests that Dominion Status is this direct relationship, and, not through a Secretary of State for Dominions, or, for Indian affairs, in one Dominion Cabinet.

CHARLES AND HENRIETTA MARIA.

We may now ask ourselves whence were these ideas of despotic power in England derived? Were they a native growth on a parent English tree? Or were they imports, foreign grafts on an otherwise healthy stock? Shakespeare saw clearly they were grafted stems of a foreign idea of Monarchy aped by England. They had the Conqueror's support, were fostered by John, refused by the Barons, applied by Richard the Second, and condemned by Gaunt. But they came again, following Philip of Spain, pursued Elizabeth, and struck at the roots of the life of our civil polity at the instigation of Henrietta Maria. She was used as a more modern Jezebel by her directors to destroy a throne, delude an unstable king, and to wreck a Constitution she did not, and could not, understand, approve, or value. Daughter of a French Court, as much depraved as Tyre, like her earlier parallel she taught a King to rob his subjects of their birthright in their liberties. She did not say, in words, use your usurped authority to pauperise a Naboth. But, instead, she helped to spoil a King by other means. And she did it as a foreign adventuress not used to the common decencies of English life and custom in manners, in words, or in civil procedure. She taught a weak but powerful man to walk strange constitutional ways so as to lose his head by abusing his throne. For it was she who sent him to his doom when, in scorn at his hesitating and weak prevarications with his honour and the word, the pledges, of a King, she sent him to destruction with the words, "Go, poltroon,

and pull out those rogues by their ears." He went. And he went to eject the Commons, to ruin a King, and to debase a Crown. She fled: a French, Medici, Stuart, despot Queen. And so this King was himself the cause, as much as Cromwell, or as Pym, of an uncivil, and an unconstitutional, war among his own people. He leased a kingdom, like a predecessor and a successor, as if it were a pelting farm, or a security for foreign political usurers. He became the supporter of alien intrigue at the bidding of the secret agencies of an alien race. He caused bloodshed on our fields of peace in a war of fratricidal enmity. He was an aggressor, whose business it was to stop all transgressions in every form. And this in any sphere, economic, social, public, or personal. He did nothing to resist the rise of party strife or individual ambitions from the depths of a puritanic religious mania, or a moral and political declension, either by the people against the Constitution and the Crown, or by himself, the King, with his prerogatives against that Constitution. It was both the sole security by which his people should have been able to resist the encroachments of a threatening power and the only method which could restrain the abuse of a sovereign authority so as to keep men free from a use of it that could menace liberty. The King should do no wrong. And, if he were well-advised, in himself or by his counsellors, he could do no wrong to any men or to the Kingdom in his keeping as a sacred legacy, a confided trust, for his posterity and ours. By an abuse of his authority he fed democracy. And that democracy by usurping this authority begot, conceived, a dictator, bred by force to build a short-lived purge.

CROMWELL.

Such beginnings of democracy by Party as we experienced in England under the Commonwealth, as it was misnamed, had very little relation to any real ideas of democracy. They were built on a despotism of the House of Commons, made possible by a destruction of the House of Lords, and the ruin of a living Constitution in the Crown, caused by an attempt to dictate by a Stuart King. But they were not the result of any approach to the real essence of democracy: government of the people by the people, a substitute for government by the Crown with, and for, the people. In this revolt of the Members of the House of

Commons neither the Crown nor the Commons respected the custom of the Constitution or the provisions of the Great Charter. And the Lords, by a weak, irresolute surrender, as again in 1911, were equally at fault. In few words the whole scene was a picture of despotic power claimed by the King but used by the Commons to resist the Crown. The people, as the people, had little or nothing to do with what their representatives did. And as most of the people had no vote they were not represented, in the modern sense, at all. And, again, the movement was due to no mere resentment against unjust taxation alone. Ship money was but one cause. That was on the civil side of these events. But on the other there was the religious aspect. Religion was forced into the political scheme by the Crown as the agent of despotic ideas, by the bishops as a meddling prelaacy, by the Presbyterians, the Independents, and the later Non-jurors, as an interfering laity. And, in consequence, chaos reigned, instead of a Crown, in both. In one sphere the powers of the Crown are to be limited. In the other the Authority cannot be limited by us. And, in this other, all power is exercised without despotism, and admits liberty as a means of freedom.

So we may say that when the *Mayflower* sailed she carried the germs of thought able to generate this confusion in the minds of all her emigrants. Religion, used as a mere political device, could, so used, make the world unsafe by democracy. It is better, therefore, to keep it out of politics and to resist those who would make it, in any sense, political. Cromwell's sincerity in his beliefs cannot be questioned. We can only say they were misplaced in his politics. And if, in those beliefs, he had been able to see the bishops as subordinates in an unwritten Constitution with its superior Council and its only Crown he might have saved another Constitution and preserved a King. He might, also, have seen the body politic maintained intact and as able, as it could be willing, to secure the rights and liberties of the people. Its office is to support the just authority of, and, if necessary, check any possible encroachments by, the Crown. We are not now concerned with the Protector's military capacities or his vision in foreign policy. But we may observe this: a Proclamation he issued in 1655, reissued in the same terms by Charles the Second, declared the residents in the English Colonies to be "free denizens of England." They were to have, and to

enjoy, all benefits, privileges, advantages, and immunities whatsoever the same as any natives or people born in England have and enjoy. The effect of this if realised and used would have made it possible, say, for Washington to sit for Virginia in Westminster. And it might have saved a consignment of good tea, prevented another civil war, and made an Empire larger than it is to-day—under the Crown and Constitution.

ITALY.

In Italy Party gave Il Duce power because another Party was wrecking the hard-won political liberties, such as they were, and national unity, such as it was, won by Garibaldi and Victor Emmanuel. And by this Party process the King is supplanted by a self-made Leader-elect, but not elected.

Italy became a Corporative State, a State of Corporations. But is it a body politic? Is it truly incorporated, as a limited liability company, under the law of the Crown, either in Council or, in Parliament? We see within its boundaries a State within a State, the Vatican City, governed by Protocols, restored by sufferance, controlled in its externals by a Pact, entangled otherwise by civil alliances and restrictions, bent, again, out of a true and a better course by efforts to secure support under the political arrangements of some Napoleonic, if more modern, code, some Concordat. Does it not lose accord because it rests too much on accommodation, the respect of a human, and the insufficient regard for a superior, law?

Napoleon was quite frank. He declared his intention to direct both the religious and the political world under himself. His councils were to represent Christendom. Priests might preside. He would control. He would open and close these assemblies, approve their decisions, "as Constantine and Charlemagne had done." He saw, and he said: "The people must have a religion; and this religion must be in the hands of the government." What or which religion? And whose government is this to be? A government by God or a government of men? That was Hamlet's question, in a rotten State.

Such measures spell despotism. Elsewhere similar ideas, by different measures, are to be read as democracy used as a path to a dictator's chair if not a throne, as yet. In Germany, in the United States of America, where the states are not united, and

the Federal Government is limited in power by these, and even in England, is election free? Is it not governed by Party, influenced by the Press, coerced by propaganda, confused by antipathies, and abused by manifold ambitions of a civil sectarian sort? Such methods cannot bring peace because the body is neither politic nor corporate. Its members compete among themselves and show that they have lost their head. But the Great Charter of England provides otherwise. And, as an English King once said, as we have seen, elections must be free.

MONARCHY: LIMITED AND UNLIMITED.

For these possible extremes of a very human, if political, desire, England provides a remedy. It is a middle way. But it is not a compromise. It reconciles two opposing aims, two different methods of civil, or uncivil, ideas of government. It makes authority shake hands with liberty. It makes liberty respect its friend authority. And it lets men go free because they regard themselves as subject to a rule of law. This is the liberty of the subject, the liberty not to be found anywhere unless in subjection to a superior law. Liberties are not taken; they are given. They are a grant, a gift, perhaps a right. But, unless granted, they may so easily become a wrong. You cannot take a liberty.

All these are obvious platitudes. Yet sometimes, because they are so evident, we do not stop to see how much they mean. But when ambitious men abused the office of kingship the people suffered. Kings became despotic and made men slaves. To remedy this republics arose. They, too, held many enslaved who sought to redeem their condition by revolt. And out of this revolution the inevitable demands of leadership were satisfied by new Caesars who made another servitude by taking granted liberties away and by subjecting freedom to the restraints of a new despotism. The dictatorship of the proletariat is no better than the dictatorship of one as President or King. The dictatorship of one is more recognisable than the dictatorship of a multitude no man can meet and none can touch. You may hold a man, possibly even a despotic one, responsible. But who, or what, is so hopelessly irresponsible as a crowd? The potential danger in millions is far worse than the threats of one.

One only man, a Colossus astride the world, a human god, put, and supported, in his position by acclamation as a self-appointed, a selected, or an elected deity, makes Brutus stir because he thinks he sees ahead this dragon in the political skies and no Hercules to tread him down, to put him under his foot, as St. George. Was not Cæsar such a god? Did he not rise by flatteries as much as by ability: as much by bribery as by useful opportunities? Did he not promote as much evil as he suppressed? The Republican Patricians in decay were no worse than the Plebeians in power. The absence of restraint on both is still to be deplored. A senate alone, or an assembly alone, cannot be checked in a wild career where every safeguard for defence has been torn down. Democracy, like a pack, will hunt despotism as a dictator will use any method to keep his unassailable authority. Such a monarchy as this can be, has been, is being, erected on, and by, democracy. Both rest on force. They rise by force to power. They stand where they are, when they arrive, by a veiled consent because none dare refuse assent for fear. A majority, because it is a majority, is not always right. A minority is not of necessity in the wrong because it cannot enforce a right. A dictator occupies a throne if he does not wear a crown. A republic is a monarchy without the name of King. Give a President sufficient power as a leader of the people and he becomes the elected representative of a despotic democracy.

AN EXCURSION.

We have been trying to run round, not England, not Europe, but the habitable, and Party-ridden, democracy-infected, globe in sixty minutes of our time, sketched out in verbs. And as we try to think, or write, or speak, such sense, restrained, as we can find, the invisible strength and swift destructiveness of thought or its building, creative, powers, can be driven, not by wind or water, not by steam, but by the vigour of wires electrified by Party-governed men through the communicating atmosphere. But this air, itself, no man or Party can control, and no King, with his limited, or Leader with his unlimited, dictatorial powers, can say to it, if it storms, "Peace, be still." Canute cannot command the tides or steady the movements in the body politic disturbed. That is the business, and it requires the capacities, the prerogatives, of a Crown, not at present sufficiently seen. But

yet it is alive and alive to our necessities. It is still ruling from an Upper Room in a Council, not of State, but, of mind, of Spirit. It is at the head of the body, not politic but affectionate, and completely filled with the spirit of liberty seeking to set us free.

THE CROWN : A MYSTERY.

Is there any doubt that the world in general is to-day suffering from some constitutional disease ? If we can judge by the many drastic remedies that are proposed as cures we may, I think, assume that the political doctors do not agree. For their proposals, their differing diagnoses, from the symptoms observed by all divide the earth as a hospital into separate and antagonistic wards. The disease is admitted as a very patent fact. We have, therefore, asked ourselves for reasons in an effort to recover sanity. This globe is meant to be an asylum for healthy and agreeable folk. But some seem to regard it as an operating theatre in which surgical treatment alone, without the application of anæsthetics, can be of any use. And, as in a recent case, carbon dioxide is used by mistake for oxygen in the desire to keep the human patient still alive. We find, then, a good excuse for seeking other remedies, and for trying to discover, if we can, a better alternative that might reconcile these differences and so give us back again a healthy political mind in a sane, well-constituted, body of people.

You may not approve my attempt. In England, in this Empire, we may be excused if we suggest that it resides in Monarchy, in the Crown, and in the personality of a King rightly understood and used as essential factors in a stable constitutional structure of human polity. Both Kingship and the Crown are filled with mystery. England's ideas of Kingship are inbred. At least, if we regard our history and our literature they are. Can we suppose that Shakespeare had no thought behind his words upon which he built his images ? Macduff saw confusion's masterpiece when murder destroyed the Lord's anointed temple in Duncan the King dead. But he saw also, in the great doom's image, death itself as a new Gorgon and life's enemy. And do we not also, by this context, see he knew in Perseus the son of the great King Cepheus, the betrothed of the chained Andromeda, whom he releases, and the one destroyer, the breaker, of Medusa, whose severed Gorgon head he holds in his left hand ? The star

in this head is well known to all astronomers as Al Gol. They call it a variable. And its name means rolling round. But a star in the waist of Perseus is named Mirfak, meaning who helps. Another in his left foot is called Athik and signifies who breaks. Did Shakespeare also know that what the Greeks called the head of the Medusa had a Hebrew origin in a root that meant the trodden under foot? It has other names: Rosh-Satan in Hebrew is the head of the adversary: Al-Oneh is the subdued, or Al-Ghoul the evil spirit, both being Arabic names. There are in the northern hemisphere, close about the Pole, four groups of stars, which have been known through all history, and beyond its long reach, as the Royal family. They are Cepheus the great king and his bride Cassiopeia; Perseus, his son, and Andromeda, whom we have already seen as the betrothed, released from her binding chains that hold her to the rocks of earth among the raging seas.

Shakespeare's references to such things as these convey more understanding than some used by Milton to coin an effective phrase. And he is aware of the sillinesses of those who, if they are fools, think it is by heavenly compulsion; if knaves, or thieves, it is by spherical predominance; or if liars and adulterers, it is by planetary influences. They lay their dispositions to the charge of a star. They put their own guilt in every disaster on the sun, the moon, and the stars. Milton in his "Ophiuchus huge" tells us nothing of his significance. Like Achilles, and another, he is wounded in the heel by his enemy the Scorpion who is destroyed by the swift arrow from the bow of Sagittarius the Chief of the Centaurs, which pierces his heart, the star named, in Latin, Cor Scorpis, or in Arabic Antares, meaning the wounding; and, again, in Hebrew, Lesath, the perverse. But in Arabic the group we think of as Scorpio is named Al Akrab, and means wounding him that cometh. And, as we have seen elsewhere, Hercules seems to be our own St. George as he, always associated with Ophiuchus, bruises the head of the Dragon with his foot.

But let me, if you will, carry my reference to Shakespeare a little farther in its bearing on the subject we are considering together.

THE WITCHES OF MACBETH

The Witches of Macbeth are no ordinary mortal beings. They are the winds of circumstance, of debate, of passion, of

evil influence in religion, in personal actions and ambitions, and in politics. They break a kingdom, destroy families, resist the fine virtues of life, and corrupt legitimate pleasures. They use equivocation that lies like truth. And they persuade men that life is but a candle, a walking shadow, a tale told by idiots, full of sound and fury, signifying nothing. They make of all things that matter an empty nihilism. Under their malign persuasions speculation and unsure hopes are ■ substitute for certain issues. They breed in men ambition, so that they live for unlawful profit. Their perilous stuff weighs upon a nation's heart to destroy its pristine health, and poison its anointed temple. And they cure no malady in a mind diseased. Therein the patient must minister to himself. And he can do so only by the use of those liberties which can set him free. They are Constitutional. And they rest in a Crown, and are secured by the Crown.

WHILE ENGLAND LIVES.

Those Roman matrons, in Rome's greatest days,
 Counting as gain their loss for honour's name,
 Gave fathers, husbands, sons, to valour's ways :
 All gold was dross if virtue held no fame.
 Great mother England, breeding sons of worth,
 Bought freedom by her sacrifice in ages gone :
 Her children, dying, brought a world to birth
 In daughter nations where this torch still shone
 Of Liberty ; a flame with life's new light :
 A beacon, burning, 'mid the dark realms around
 Where nations lived, submerged, in hideous night
 Of chaos, tyranny. Men work still bound
 By chains some despot forges for the free.
 While England lives man's freedom yet may be.

DISCUSSION.

The CHAIRMAN (Brig.-General W. BAKER BROWN, C.B.) said : The paper we have just heard covers a very large range, and the thesis is supported with such a wealth of illustration and argument that it is impossible in the short time at my disposal to cover all the points raised. I can only attempt to refer to one or two aspects

which seem to me to be vital to his argument. His main contention, as I understand it, is that the Crown in England, that is our system of Government by a King in Council, assisted by two Houses of Parliament, provides a system so complete and perfect that it can be and should be adopted by all countries. He justifies this by a claim that this system is of divine origin.

Now while all members of the Victoria Institute will agree that there is a divine guidance in all human affairs, I would venture to suggest some doubt as to whether the exact stage which we have reached in this country at the present date represents the absolute best, or can be considered in any way as final. In all the affairs of this life we seem to find a general law of check and countercheck, of rise and fall, under which any excess of development in one direction is balanced in the long run by some development in the opposite direction, while all the time the sum of human knowledge and intelligence increases. Thus the excessive development of the dictatorship of the people in one country in Europe has been balanced by the rise of two other autocratic dictatorships in other countries. I therefore put forward this point : Can we expect that the present system of government in this country will continue indefinitely, and, if not, in what direction may we expect it to change ?

A second point on which I do not agree with the lecturer is his use of the word democracy which he applies in its debased sense of government by a group of the less educated classes at the bottom of what we call the social scale. Properly, democracy means government by the people as a whole in opposition to the form of government by a dictator. Every member of the people has a right to a voice in such a government, and the test of whether any form of government is a good one is not only whether it is government of the people by the people, but whether it is "for" the people and is working for their good and future development.

With a complex society such as ours, it is necessary to recognise many schools of thought, and in order to get the best results there must be found a working "compromise" between the different opinions.

This is another word which is disliked by our lecturer, but it is capable of more than one meaning. A compromise between parties in which each party laid aside its own principles and in which the

parties only unite for the purpose of obtaining office is a bad thing. A compromise in which parties agree on certain vital principles but agree to differ on details may be a very good thing. Let me give you an example of what I mean. If you take a pot of white paint, and another of black, and mix them together, you will get a uniform grey, which may be ugly, and will certainly be monotonous. But if you apply the paints separately so as to produce a pattern, you can get the most striking effects. The ladies will, I think, agree that a costume carried out in black and white can be most effective, while nature itself shows us the same combination. What is more beautiful than a picture of a wood in winter with the black stumps of trees showing through a coating of snow.

May I carry the simile a little further, and suggest a pattern for our future form of government, in which the white ground is decorated with patterns in black—not too much of it—blue, royal blue, as a middle colour, and—again not too much of it—some touches of red.

The Rev. C. W. COOPER said: The writer of this paper rightly says that “There is a cure for all political diseases of to-day,” and that that cure is *Monarchy*, and not democracy. He then proceeds to prove his thesis by stating that Monarchy must act constitutionally—decisions being by consent—and that in this method there is some divine right, which indicates a right to do the right thing in the right way. The thesis seeks to establish the Divine Right of Kings, and applies this truth to the Crown of England.

What I could have wished to see in this paper is some evidence to prove the Divine Right of the Crown of England. We ask, at what date, or period, did this Divine Right come to the Crown of England, also at what date or period did the Crown of England originate, for a Crown with an inherent Divine Right could not be set up by any human caprice or authority? Surely, if we cannot establish that the Throne of England was founded by Divine authority, then there is no authority for saying that it has any inherent divine right.

Why is it that the genealogy of the British Throne (as contained in the British Office of Heraldry) which traces the British Throne

back to King David, to be appointed by God "for ever" (2 Samuel vii) is not a more generally accepted truth? Over and over again our Bible states that "David shall never want a man to sit upon his Throne." In the Books of Chronicles, God speaks of David's throne as "My throne." Psalm lxxxix and its 52 verses speaks of this same throne, the promises, and the seed, as "enduring for ever"—all as part of God's covenant, which can never fail.

If these things be true, where is that Throne in the world to-day, if it be not the Throne which is established over our Empire? Our Empire not only dominates the world but has a set purpose, to uphold and to set forth the Kingdom of God, of which Jehovah and Jesus Christ is still King, the laws of which are the laws of God (Exodus xx), Israel, the redeemed-servant-nation, to be used as an instrument for the fulfilling of the Divine purpose of God for the righteousness of the whole world.

The Rev. ARTHUR W. PAYNE said: I am very grateful to the writer of the Paper for his most informing and interesting contribution to our ideas of the importance of the Crown of England. I am unable, however, to agree with the previous speaker (Rev. C. W. Cooper) that it represents the Kingdom of David. When the doctrine of evolution first came up, the celebrated Hebrew Christian, Benjamin D'Israeli, Earl of Beaconsfield, said, "My Lord, I see this as a question of apes or angels. I am on the side of the angels." In the same way the speaker asserted that he too was on the side of the angels in this matter of the Throne of David. Such a statement seems to be hard to reconcile with the message of the angel to Mary, recorded in Luke i, 30-33. This is how it runs: "And the angel said unto her, Fear not, Mary: for thou has found favour with God. And, behold, thou shalt conceive in thy womb, and bring forth a son, and shalt call his name Jesus. And he shall reign over the house of Jacob for ever; and of his kingdom there shall be no end." To my thinking, anybody who claims the right to the throne of David challenges the Crown Rights of the Lord Jesus Christ, Who is both God, and man Immanuel, the King of the Jews.

There was a plan for the redemption of the world, already revealed by Jehovah. In the first place, the Tabernacle period

may be distinguished, extending from the time of Abraham, Isaac, and Jacob up to the reign of David. It is followed by the Temple period, covering the centuries from Solomon until Christ. That has been succeeded by the present Intermediary period, fast drawing to a close, as the sons of Abraham are being rapidly gathered to their Homeland in Palestine. In the near future lies the triumphant period when the Jews will universally recognise Jehovah Jesus as their Messiah, and the prophecy of Zechariah viii, 23 will be fulfilled. "Thus saith Jehovah of hosts: In those days shall it come to pass, that ten men shall take hold out of all languages of the nations, even shall take hold of the skirt of him that is a Jew, saying, We will go with you; for we have heard that God is with you." The Jew can never expect to have Immanuel's land apart from recognition and acceptance of Immanuel Himself.

Mr. GEORGE BREWER said: While there is doubtless much truth in what Major Corlette claims for the Crown in England, and that the Limited Monarchy, as at present constituted, is probably the best that can be devised, the claim that it is a cure for all the political diseases of to-day is, I fear, excessive.

When the Kingdom was removed from Israel in the reign of Zedekiah on account of their long-continued disobedience and idolatry, Nebuchadnezzar was appointed by God to be the first Gentile Monarch to carry out the Divine will. This Head of Gold was to be succeeded by inferior metals, culminating in Iron and Clay, thus symbolising gradual descent from Absolute Monarchy through successive stages of wider distribution of power until it rested on representatives elected by the common people, which we term Democracy. While each of these has in turn failed to fulfil the purpose of good government, the fault does not lie with the power bestowed, but with the human instrument which has failed to exercise the power aright. This failure is inevitable until He comes, Who will destroy all oppression and rule in perfect righteousness and equity. Meantime, in the fallible condition of human nature, a combination of Monarchy, Aristocracy (of intellect as well as birth) and Democracy would appear to be less liable to failure, which has hitherto been mainly due to the absence of recognition of God and

the Divine authority of government, combined with the tendency to regard power as a right, rather than a responsibility.

The British Monarchy as at present limited by the Constitution, and the neutral attitude of the Crown, free from political bias, provides a balance steadying the clash of opposing interests, and preventing the too constant and sometimes violent changes, which we see in some republican states, thus ensuring stability and permanence in the midst of conflicting policies and encouraging the exercise of patience and toleration among all classes.

To the Christian the exhortation in 1 Peter ii, 17 is a sufficient guide, "Honour all men, Love the brotherhood, Fear God, Honour the King."

That God's blessing has rested upon our Country since the Reformation, when the ecclesiastical tyranny of Rome was thrown off, and the Bible became an open book for all, is plainly evident; and I think few, whatever their theoretical opinions may be, would be willing to exchange our present constitution for any other form of human government.

While the Divine authority of the Crown in Council and in Parliament remains intact, irrespective of the character of the wearer, the personal integrity and moral influence of the sovereign as exemplified in recent reigns is an inestimable boon.

WRITTEN COMMUNICATIONS.

Lieut.-Colonel L. MERSON DAVIES wrote: I agree with very much that Major Corlette says in his interesting and instructive paper; but I would like to recall some facts about Cromwell, to whom I think he sometimes does less than justice. The statement on page 5, that Cromwell "cut the throat of a misled King," seems peculiarly unfortunate.

When Charles began to fear for his life, he appealed to Cromwell for help; and Cromwell gave it. Even Mrs. Hutchinson—no friend to Cromwell—believed in the sincerity of his efforts to save Charles. So, it seems, did Charles himself, who put the lowest construction upon Cromwell's response to his appeal. "Cromwell thinks," he wrote to his Queen, "that I may confer upon him the *Garter* . . . but I shall know . . . how to fit his neck to a *halter*!" The idea

that Cromwell, who was in a position to make himself King, was extending his aid in hopes of obtaining a decoration has its humour. But the private messenger was arrested in Holborn, the Royal letters read, Charles' duplicity again exposed, and the futility of hoping to reach an understanding with such a person finally realised. It was, therefore, no "misleading," but Charles' own self-revelations, which finally sealed his fate.

So far from possessing the spirit of an assassin, Cromwell, like William the Silent, was long before his time in desiring tolerance for all who would live peaceable and orderly lives. An Independent himself, he allowed full freedom of worship after their own fashion to the Covenanters who had tried to force Presbyterianism upon all other parties. Quakers and Anabaptists were countenanced by him, when most Independents would have put them in the stocks—or worse. He honoured a Churchman and Royalist like Archbishop Ussher enough to order that his remains should be buried in Westminster Abbey. Even Roman Catholics were so effectively protected by him that, as Macaulay said, Cromwell "was denounced as a Papist in disguise." He similarly gave asylum to the Jews, against the will of Parliament. His sympathies could hardly have been more general. While shielding Roman Catholics in England, he peremptorily stopped the butchery of Protestants by Roman Catholics abroad. (Compare this with the action of Charles, who sent English ships and guns—whose English crews deserted in horror—to arm Cardinal Richelieu against the Protestants of La Rochelle; these English weapons subsequently "mowing down the Huguenots like grass.")

How could such a man, with clear conscience, permit a Parliament to govern on worse lines, while knowing his own ability to govern on better ones? He gave Parliament its chance, and Parliament failed. To blame him for assuming control himself, is to complain because he willed to protect minorities which inevitably suffered under other forms of contemporary government. "I undertook," said he, "the place I am now in . . . out of a desire to prevent mischief . . . to serve, not as a King, but . . . as before God . . . a good constable, set to keep the peace of the parish." "Lord Protector" was the title he assumed, and no man ever justified his title more thoroughly.

AUTHOR'S REPLY.

To the CHAIRMAN (Brig.-General W. BAKER BROWN, C.B.): That the English Constitution has in it principles of some permanent and general value may perhaps be agreed. It has long been the pattern to many who have tried, and failed, to reproduce it. But it is not yet so perfect that we can say it should be adopted by all others. It is not for us to suggest so much. My effort was to show, not that it is of Divine origin, but, that in it we may find a resemblance to some principles of constitutional structure and government of surpassing value. It is a human instrument built by, and for, the use of men. But because it is this are we wrong if we suppose it may be related, if distantly, to some deeper, universal, principles of Divine origin which we should do well to see more clearly so as to apply them for the general benefit of all?

To the Rev. C. W. COOPER: Is it really necessary to prove the Divine right of any man in authority? We are told—"all authority is of God, and, by me Kings reign and princes decree justice." Further, Render to Cæsar the things that are his, and not those that are not. Also, the Divine Right of the Crown is by, and within the limits of, the law of the land, by succession, by consecration, by coronation. The date on which a priest is ordained is the day on which he receives a Divine authority to do certain things a layman cannot do. But he receives no authority, or right, to trespass on the province of those who have authority to act as ministers in civil affairs, masters in their own businesses, or parents as heads of families. Kings are, or should be, ministers-in-chief for this very thing, to do justice, support civil order, secure liberty for the people, sustain their freedom, accept responsibility in receiving authority and support all other authority by holding men, as civil ministers, responsible for what they say or do. In other words, a king should support law and order, by counsel and by consent.

The Throne of God does not exist in the world, not yet. If it did, or when it does, as it will, we shall hear a benediction. What we see round us now is its opposite, its opposer, the last phase of mingled elements in decay. By the use of these some are trying to set up a rival kingdom by democracy, or by some Fifth Monarchy of a mammoth despotism as a spurious substitute.

To the Rev. A. W. PAYNE : Mr. Payne has expressed my view that the Crown of England is no substitute for the Kingdom of David. How could it be so when, as ■ previous speaker has reminded us, God speaks of David's Throne as " My Throne " ? The doctrine of evolution, as it has been understood by some, is, as it must be, a complete denial of the possibility of such ■ Throne. It is now more clearly seen as a doctrine of apes, not men. Men are men, and neither angels nor disembodied spirits, but living beings of body, mind and spirit. And their future is here, on this substantial earth. We may leave all theosophistry to the many philosophies of pantheism. It still holds sway in Tibet, with its early sign and symbol the Swastika, in parts of India and Ceylon, in China and Japan, in modern Europe, and in America. It is a plausible fiction of the mind opposed to known facts both physical and spiritual. It is, to-day, but the physical polytheism of ancient Egypt applied to mankind as a substitute of human faculties, working hypotheses, plausible theories, abstract qualities, for the living reality of One Self-existing Triune God. And this new polytheism is to be deciphered in the various aspects of the philosophy of humanism which is being translated into political form and language as democracy.

To Mr. GEORGE BREWER : My suggestion was that a Limited Monarchy is a safe means between those two opposite extremes, unlimited monarchy as a dictatorship and democracy as the despotism of many. There is no desire on my part to impose our particular form of Limited Monarchy on others ; but that it has built into it much of value as an illustration of how to avoid the dangers of extremes seems evident. The political diseases of to-day are the result of these two extremities—the desire, by grasping power, to throttle freedom, and the effort to deny all superior authority and to seize unchartered liberties so as to indulge in a licence of riot miscalled liberty.

Can we say that Monarchy, Aristocracy and Democracy is a combination at all possible or not liable to failure ? In a Limited Monarchy a subordinated Aristocracy supplies a need and a defence for, as well as a support to, the people. And the people are an equally essential part of the body politic in such Monarchy. In it they must be represented by their selected, or elected, representa-

tives. But to regard representatives as delegates is to stifle thought, to strangle government. If Democracy is government of the people, by the people, for the people then any other government becomes impossible since it cannot be responsible if it is itself governed by dictation from below. A government if it is to govern must be free. A people will submit to be governed if it is free, and, in that freedom, has liberty to select, or elect, its own chosen representatives. And a Monarchy so Limited can govern and be responsible, but only by counsel and by consent. It is the opposite of Democracy in this that it has a central and a governing authority. And that authority we see in the Crown. But instead of being government of, by and for the people it is the direct reverse of this. For it is government by the Crown for and with the people by consent. The Act of one becomes the Act of all because there can and must be counsel before there is consent.

To suggest that the latter form of this image in iron and clay symbolises a descent from Absolute Monarchy by stages of wider distribution of power till it rested on representatives elected by the people, or Democracy, seems apt. But it is a descent that means a decadence.

Reply to written communication by Lieut.-Colonel L. MERSON DAVIES: That Charles was a misled king appears to be the fact. He was ill-advised, as we express it, in using prevarications, abusing trust, betraying loyalties, offending justice, debasing sovereignty, and threatening liberty. He was misled by his own peculiarities because his character was unstable, his temper mercurial, and his aim confused. Yet in person he was not without attractions, in manner, in dignity, and in his resignation at the end. But as no tribunal known to the law could try, much less condemn, him, and authorise his execution, Cromwell was responsible before all others for his death by the axe and block. Duplicity in Charles could not excuse or palliate such revenge. Cromwell's tolerance permitted him to tolerate a breach of law. He tolerated and used an intolerant military and political despotism to support his own intolerant ideas of an intolerable religious and secular dictatorship. He might well be denounced as a Papist in disguise. For while he resented a despotism of prelates he was aided by a despotism of presbyters, and he destroyed, or tried to remove, all opposition by the dictatorial

support of his own following. He had, like Charles, his virtues and his merits. But the State Trials quoted by Lord Tweedsmuir show that in securing the necessary signatures to an illegal instrument, "his inflexible will coerced the waverers, and it is said that in the signing of the death-warrant he guided some of their pens." And if in his effort to protect minorities he allowed a minority of the House of Commons to take command of the whole of Parliament, King, Lords and Commons, and set itself on a pedestal of despotism, in unassailable command of the nation, then his "protectorate" was not a "commonwealth" but a dictatorship. And as such it stands condemned in any and every test of constitutional principle by the whole English body politic. Lord Tweedsmuir indicates that Cromwell's policy towards the Jews, against Parliamentary and municipal advice, was a commercial and government financial measure to buttress aggressive policy rather than a matter of tolerance or religion.

AUTHOR'S GENERAL REPLY.

My aim was to invite the consideration of some of those elementary ideas that may be supposed to reside in any kind of a sane political philosophy. This discussion, if it has strayed, shows a trend of thought but little critical attack. Montrose in his short essay on Sovereignty, with the Crown, the King, as a Central Royal executive, says much of real value. Cromwell's ideas of a political or a constitutional structure were as hazy as those of the Scottish marauders who supported a new Covenant and a revolting Kirk with their despotic intolerant presbyterian tyranny of dictation by a half-fledged democracy. At least, it was no better than that sort of prelacy it properly derided and detested. But if the English or the Scotch bishops had realised they were, or should have been, subordinates in a wider sphere, and the local representatives only of a Superior Authority, neither Greek nor Latin, they could not have earned this vicious if well-placed spleen. The contending bishops, of East or West, before the abortive Reformations and Counter-Reformations, which spelt as much revolution as real reform, had already long forgotten the use of a college of presbyters as a permanent, but local, body of advisers, a diocesan privy council, assisted, no doubt, by a diaconate, also permanent, as the elected

representatives of the people. The relic of such a constitution is suggested by the seats in the apse of the Cathedral at Torcello even now. And such a scheme, alone, could calm the rancour of debate between the contentious supporters of ■ too ambitious Prelacy, an encroaching Presbyterianism, and an unruly body of self-asserting Independents. So, and so only could a necessary individuality be secured within the order of one corporate body, not politic but spiritual. My reference to ■ Constitution, and a Crown in Council, seen long since in conference in an Upper Room in Palestine was no idle allusion. In it might be seen the institution of a model structure, in its beginnings, which contained, in essential principle, a suggestion not without use if applied to civil affairs. But it was not my desire to indicate any approval of such confusing notions as many have held, and still hold, namely that an ecclesiastical order should rule in the civil realm or that the secular order should regulate spiritual proceedings in an ecclesiastical sphere. They are separate. They may be related. But, as both the Commonwealth and the Kirk showed in Civil War, they are not identical, they cannot be confused, they must not intermeddle. Kings are ministers in a civil order for that very thing. Priests or presbyters, bishops or prelates, and deacons too, are equally necessary as ministers in another order, but all of these are under the supremacy of that Privy Council, and its Supreme Crown, in the Upper Room. And, let it be clearly seen, these are constitutional matters of the highest moment if we would avoid a future confusion even worse, and more far-reaching, than any experienced in the past. And that past covers not merely English history but the story of a mangled and a distorted Christendom, more, a perplexed and a very hungry world looking for the signs of peace in the dark clouds of disillusion both ecclesiastical and political.

Montrose once warned the King against the methods of Rehoboam. His opposition to the Kirk hypocrisies, the Covenant dictation, and to Cromwell's military despotism and sham democracy rested on ■ sincere desire to offer every resistance possible to the corrupting imitators of Jeroboam's policy in Edinburgh and in London. He lived up to the responsibilities of his position and "Estate." He died to rescue from political and ecclesiastical slavery those who could not, alone, protect themselves. And for his magnanimity

he was destroyed to satisfy Party strife and faction, and hanged, drawn and quartered by a Kirk to satisfy a vindictive Covenant. He was a sacrifice offered to save the Crown, preserve ■ constitution, and secure the sovereignty, the prerogative, of an executive central power for two kings by whom he was betrayed through an abuse of sovereign powers, a misuse of authority, a philosophy of deceit, a parody of truth.

In England and in Scotland we were warned in advance during the partizan confusions, compromises and animosities, supported, and resisted, by civil war that these provided no solution of the difficulties and distresses of the time. The same perplexities now threaten a wider area of disaffection. And the same questions are in dispute. It therefore becomes necessary to examine them if we are to find a method that may heal this confused debate and provide a remedy. Strafford supported Monarchy unlimited by any Parliamentary advice or conference. Cromwell thought a usurping House of Commons as an oligarchy not yet democratised should dictate to the Crown and suffer no check by the Peers. He destroyed a parliamentary structure in which an aristocracy was provided and was meant to serve as the security of the people against any excesses by the Crown. A House of Peers was also meant to stand as ■ restraint upon the Commons or the King in any effort they might make to restrict legitimate popular liberties, the use of a just prerogative, or encroach upon the responsibilities conferred by the essential freedom of the whole commonalty of the Realm. Of this freedom the Crown was to be and must be, the chief guarantec. That is the prime value of the Royal prerogative and the reason for its sovereignty, in a sovereign Parliament. It is this that makes the Crown responsible and confers on the king a semblance of a Divine right, a right to act and enact that can do no wrong if, and only if, it is well advised. But if any advice is partizan it is biassed. Therefore party, as party, in a body politic dismembers it. The right to differ, to oppose, is and must be legally secured and sustained. But organised opposition for the service of party purposes is a different thing from His Majesty's Opposition. His Majesty's Opposition should exist, be free to act, so as to be sure His Majesty's Government shall do no wrong, while it may suffer correction and benefit by criticism.

Lord Balfour perceived, like Burke and Junius, what he called "inner verities" within the frame of the English Constitution. Paul of Tarsus speaks of the renewing of the spirit of our mind, or, as he puts it, of the inner man. What is this inner man not visible but evident by physical action? As in man so in the English polity, as a body politic, we observe a threefold constitution. But also in both the single and the larger corporate being we find that a temperate will, a restrained imagination, a guided reason, and controlled affections are some of those inner qualities of being without the use of which nothing can exist and little may be done.

808TH ORDINARY GENERAL MEETING.

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, MARCH 22ND, 1937,
AT 4.30 P.M.

MRS. M. A. EVERSLED, F.R.A.S., IN THE CHAIR.

The Minutes of the previous meeting were read, confirmed and signed.

The CHAIRMAN then called on the Rev. T. E. R. Phillips, M.A., F.R.A.S., to read his paper entitled "Some Recent Views of the Physical Universe and their Reaction on Present-day Thought."

SOME RECENT VIEWS OF THE PHYSICAL UNIVERSE AND THEIR REACTION ON PRESENT-DAY THOUGHT.

By The Rev. T. E. R. PHILLIPS, M.A., F.R.A.S.

IT will be readily admitted that at no period in history has progress in man's effort to understand Nature been more rapid than in our own day. Startling theories have been put forward and discoveries made which have completely revolutionised some of our ideas and given us quite a different conception of the physical universe from that held so recently as the end of the nineteenth century and even the early years of the twentieth century.

Of course, from the times at which historical records begin, there have been those who have desired to understand the phenomena of the external world and to probe into the mysteries of Nature. We have evidences of this in the theories, speculations and discoveries of men of ancient civilisations, like those of Egypt, Babylon and Greece, but for many centuries following the golden age of Greek culture there elapsed a period of almost complete stagnation and paralysis in regard to those matters with which we are now concerned. This arose partly through the fact that men's intellectual activities were turned in other directions, and partly to the overwhelming and paralysing

weight of authority which some of the great teachers of the past—Aristotle especially—exercised over early and mediæval thought. Indeed, many of the beliefs about natural phenomena current until after the coming of the Renaissance seem to have been rooted in mere abstract reasoning and in philosophical ideas as to the fitness of things, rather than in answers to interrogations directly addressed to Nature herself. And so long as men were content to accept without further inquiry the doctrines they had inherited, and to sit down meekly under authority in the belief that the truths and facts of Nature were already sufficiently well known, of course, there could be no such thing as progress in knowledge, and no emancipation of men's minds from the thralldom of superstition under which the peoples of mediæval Europe lived and suffered.

All honour, then, to men like Roger Bacon, Giordano Bruno, Galileo, and others who, in the face of strong prejudice and even, in some cases, of bitter opposition and persecution, daring to doubt and question, laid the foundations of experimental science, or fought bravely in the cause of liberty of thought.

But to-day I wish to speak more particularly of that knowledge of the physical Universe which we owe to Astronomy, and then to refer shortly to some of the ways in which it is reacting on present-day thought. And here let me explain my use of the word *Astronomy*. It is a name which can no longer be limited to the study of the positions of the heavenly bodies, the theory of their mutual relations, the laws which describe their movements, and the information concerning their appearance and physical state acquired by telescopic and photographic observation. Astronomy has taken into partnership with itself the science of Physics, and the union between the two is so close that it is quite impossible nowadays to draw a dividing line between them. Each has helped the other, and it is from their combination that there has emerged that radically changed view of the Universe with which we are becoming familiar. It must, of course, be conceded that there is a large part of modern astronomical theory which is as yet more or less speculative, but all the same, observations and discoveries have been made which render quite untenable many of the beliefs of our fathers, and which have given us not merely an astonishingly extended horizon but a fundamentally different conception of what the external world really is.

We cannot, obviously, consider to-day the development of Astronomy in detail, and must be content with a brief survey of its history.

In the third century before Christ, Aristarchus of Samos had taught that the earth is a planet rotating about an axis and revolving round the sun, but his theory seems to have been very generally overlooked or ignored, and was, perhaps, not taken seriously.* Indeed, for something like eighteen centuries and more—until after the time of Copernicus—the belief which held the field was the primitive and natural one that all other objects—sun, moon, planets and stars—move round the earth in their respective paths, and have indeed been made for the benefit of its inhabitants, and especially its crown and glory—man. It was the function of the heavenly bodies “to give light upon the earth.” But after the revival of learning this geocentric theory, though backed by all the weight of philosophical and ecclesiastical authority, could not withstand the increasing strength of developing science resting, as it did, on the surer foundation of observation and mathematics. The Ptolemaic system simply collapsed under the strain of its elaborate and wholly unnecessary system of epicycles; Kepler, making use of observations by Tycho Brahe, destroyed such remnants of the old theory as were rooted in the concept of “the fitness of things” by showing that the motion of the planets is neither uniform nor circular; and then Newton, with his law of universal gravitation, made the Heliocentric Theory an established and consistent whole. Thus was the centre of the Planetary system finally transferred from the earth to the sun.

The next fundamental step is associated particularly with the name of William Herschel, who is rightly styled “the father of sidereal astronomy.” In 1811, when approaching the close of his wonderful career as an observer, he wrote:—“A knowledge of the construction of the heavens has always been the ultimate object of my observations,” and we read that in the course of his work he made counts of the stars in a very large number of telescopic fields of 15' diameter as samples for the study of this problem. These showed him that stars of all kinds and

* It was, however, accepted by Seleucus, who lived about a century later than Aristarchus.

magnitudes are concentrated towards the Galaxy or Milky Way, which indicates, accordingly, the fundamental plane of the sidereal system, and that the latter in its general form is roughly disk-shaped or lens-shaped, being several times more extended in the direction of its plane than in the direction of its poles. But in this system our sun is not only *not the reigning monarch*—it is but a comparatively insignificant unit among many thousands of millions of other suns (for every star is a sun) more or less resembling it. Herschel, however, thought it to be near to the centre of the system though slightly displaced northwards from its fundamental plane. Recent research has put it about two-thirds of the way out from the centre towards the periphery, the direction of the hub of the system being indicated by the rich star-clouds in the Sagittarius region of the sky. One reason for supposing the sun to be so far from the centre is that those remarkable objects, the globular clusters, consisting of many thousands of stars massed together, which envelop the Galaxy are, as seen by us, practically all in one hemisphere of the sky.

But besides his study of the Galaxy, Herschel devoted much attention to the large number of faintly luminous objects—the Nebulæ. Many of these, like the famous object in Orion, are obviously associated with our own sidereal system; but there are others which appear to be in quite a different category and to be much more remote. Following the speculations of Thomas Wright and Kant, he called them "Island Universes," believing them to be systems of stars isolated from but subordinate to the major system of the Galaxy. This idea of isolated stellar systems was not generally accepted by the astronomers of the latter part of the nineteenth century and earlier years of the present century, but as the result of recent study—especially by Hubble and others at Mount Wilson—it is now not only restored to favour but firmly established, with the added recognition that, instead of being *subordinate* to our Galaxy, these objects are, at any rate, *comparable* with it, and fellow members with it in a vast Universe of stellar systems—already developed or in the making—whose number is believed to run into many thousands of millions!

As regards dimensions, the diameter of the Galaxy measured across its plane is now believed to be about 100,000 light years, which means that it would take a ray of light, of which the

velocity exceeds 186,000 miles a second, that time to traverse it! The number of suns it contains must be several thousands of millions, in addition to a great quantity of diffused matter. Perhaps the majority of the other systems are considerably smaller than this. Estimates of the mean mass derived by different methods give discordant results, but it must be noted that the general tendency of recent research appears to lead to the conclusion that some of them are much larger than they were formerly believed to be. For example, the Andromeda nebula has been found from photoelectric measures of the region of the sky surrounding it, as well as from the detection of about 140 neighbouring objects which are apparently globular clusters like those associated with our own stellar system, to be far more extensive than was once thought.

The extra-Galactic nebulae differ considerably in form. What we know of their structure is due almost entirely to the development of photography in conjunction with giant reflecting telescopes; and it would seem that when arranged in sequence they indicate various stages in a majestic process of evolution. Some of them appear as mere roundish or globular masses of hazy light; some, which are elongated or spindle-shaped, are almost certainly flattened, lens-shaped disks seen obliquely; some show a sharp edge such as would be assumed by a mass of gas rotating with increasing speed; in some a dark band, evidently due to absorbing matter, crosses the nebulous object along its major axis; while among those which are best defined and nearest, many are seen to possess a beautiful spiral structure usually consisting of two arms issuing from opposite sides of a central nucleus and coiling round it. On photographs of nebulae like those in *Andromeda* and the *Triangle*, not only is a granular structure shown in the outer parts of the spiral arms, suggesting groups and clusters of stars, but individual points of light—some of them of changing brightness, like the Cepheid variables and novæ of our own system—are clearly caught.

Is our Galaxy, too, a spiral nebula? From our position within it and almost in its plane it is impossible for us to answer this question definitely, but it seems very probable that it is. We know, at any rate, from the work of J. H. Oort and others that it is rotating, as has been shown to be the case with other systems. And it is interesting to know that the manner of its rotation is similar to that of our planetary system; the inner

parts moving more rapidly than the outer and thereby indicating a concentration of mass near its centre. At the distance of our sun from the hub, the time required for a complete revolution is more than 200,000,000 years !

Something must now be said as to the manner of determining the great distances with which modern astronomy is concerned and the degree of credence that may be allowed them. Of course, the ordinary direct trigonometrical method, for which the diameter of the earth's orbit (186,000,000 miles) is the longest available base line, will not take us really very far (speaking cosmically) into space. It serves for stars not much more remote, say, than 60 light years' distance ; but for the majority of the stars other and indirect methods must be sought and applied. Of these I have only time to refer quite shortly to two or three. One of them depends on the study of certain absorption lines in stellar spectra, and makes possible the determination of the *actual* brightness or luminosity of a star, whatever its distance from us may be. And then, knowing from photometric observations what its *apparent* brightness is, and knowing that the intensity of light falls off in accordance with the inverse-square law, we can by a comparison of the *actual* and *apparent* brightness obtain the information desired. This method can, of course, only be applied to stars which give us sufficient light to make the study of their spectra with our present available instruments possible.

Another method which takes us much farther than this in our exploration of the Universe is based on the observation of a certain type of variable stars known as *Cepheids*, after the typical star of their class δ *Cephei*. These stars flash out with greatly increased brightness at regular intervals, like the revolving lantern of a lighthouse, in periods ranging from roughly half a day to several days. And the important thing about them is that a relationship has been established between their periods and their actual brightness, those which show the longest intervals between their outbursts being brighter than those which go through their changes more rapidly. The difficulty has been to establish the numerical scale of the relationship ; but it will be clear that this being known, if we assume that the relationship holds good in all parts of space, then we can infer from their periods the *real* brightness of these stars, whether they are situated in the Galactic clouds or anywhere else ; then, from a comparison

of their real brightness with their photometric magnitude (*i.e.*, their brightness as seen by us), their distances, and therefore the distances of the parts of space in which they are found. It is by this method that the distances of many of the remote globular clusters and some of the great spiral nebulae have been determined. As regards these latter, we may add that observations of the brightness of *novæ*, or so-called "new stars," similar to those which from time to time blaze out in our own Galaxy, as well as of certain types of giant stars, on the assumption that they, too, are of about the same brightness as those in our system, have also been utilised, and have led to accordant conclusions. The distances of the remoter objects can only be derived by less certain but probably on the whole fairly trustworthy methods.

And now as to some of the actual results which have been derived. It seems that the nearest of the extra-Galactic nebulae—such as those in *Andromeda* and the *Triangle*—are at distances of nearly ■ million (10^6) light years—others are enormously more remote than this, the figures for those which are just within reach of the 100-inch reflector at Mount Wilson being of the order of 200 million light years! On the completion of the 200-inch reflector now being built, it will be possible to reach objects at double this distance!

What an amazing difference between the Universe as we now conceive it to be and the Universe of the early astronomers centred on our little world!

But over and above the broad facts of its structure and dimensions as at present known, there are other matters to which we must now give some attention. The Universe is not static; it is a Universe of *motion* and of *change*.

Now in the study of celestial motions, astronomers until comparatively recent times were handicapped in one important respect. Provided that a star is reasonably near and is travelling rapidly, its motion *across* the line of sight can be found from a comparison of its positions on photographic plates taken after an interval of ■ number of years. But how is its motion *in* the line of sight, *i.e.*, directly towards or away from us—its *radial* motion as we call it—to be determined?

Consider the case of sound—say ■ definite musical note. We know that if the source emitting it is approaching us (or, alternatively, if we are moving towards it) the compressional waves in the air are more crowded together—or we encounter

more of them in a given time—with the result that the frequency with which the ear-drum is struck is greater than if the distance were unaltered, and the pitch of the note is raised. If, on the other hand, the source is receding from us, we have the opposite effect and the pitch of the note is lowered. So it is with light. If a star or nebula is approaching or receding the frequency of its radiations is increased or diminished, its spectral lines are accordingly shifted proportionally towards the violet or red end of the spectrum and the measured amount of the shift gives the relative velocity of the motion.

We here come to an astonishing fact deduced from a study of the spectra of the extra-Galactic nebulae we have been considering. It is found that in general their spectral lines show a large *redward* shift, and, if we make allowance for the rotation of the Galaxy, it seems that practically all of them are stampeding away from us as if our particular stellar system were the plague-spot of the Universe! And not only so but the velocity of their retreat is on the whole proportional to their distance, those farthest off receding the most rapidly. The greatest velocities at present known actually exceed 20,000 miles per second! But this general recessional movement of the extra-Galactic nebulae seems so strange and leads to such astonishing conclusions that doubts have been expressed as to whether the redward shift of their spectral lines is rightly interpreted, and may not be due to some cause other than motion. Such possible causes are familiar to scientists, but, after careful consideration of the various aspects of the problem, it is concluded by most of those competent to judge that the velocity interpretation is the correct one. And so the Universe is apparently expanding at a prodigious rate, doubling, according to Sir Arthur Eddington, its radius in about 1,300 or 1,400 million years!

Support for this view of the Universe is found in the development of the Relativity Theory. According to Einstein, not only has space the property of curvature in the gravitational fields associated with massive bodies, but the sum total of matter in the Universe causes a general closing up of space, so that it has a finite radius. On this theory, space is necessarily *limited* though it is *unbounded*. There is no place in the Universe at which we are compelled to halt—we can always go on like an insect crawling over the surface of a sphere. Of course, we cannot form any really satisfactory mental picture of curved space,

for although we are familiar with the curved surface of a sphere the curvature of Relativity applies to 3-dimensional space, and this is beyond our present powers of visualisation. This is, however, no justifiable ground for denying its existence. Now it has been demonstrated that a Universe such as Einstein at first described is unstable, and the Abbé Lemaitre and others have shown by mathematical reasoning that it must expand. Perhaps the best illustration of what is taking place is the inflating of an elastic bladder or balloon, only we must understand that the expanding space is represented not by the interior but by the *surface* with its gradually increasing radius of curvature. If now we attach to the surface of our balloon a number of small pieces of paper to represent the separate spiral nebulae and other galaxies, we note that in the course of the expansion they move apart, and that from any one of them the others are receding at rates proportional to their distance. On this view the recession of the nebulae which we deduce from the redward shifts of their spectral lines is not the expression of any antipathy to our particular system—it would be equally noticeable at any other point in space from which we might choose to make observations! We may add here that in its present state the Universe is well on its way from the condition of static density in Einstein's picture of it to that of practical emptiness which characterises the Universe described some years ago by the late Dr. de Sitter.

There is an alternative theory which, in fairness, I must not omit to mention, viz., that of Professor E. A. Milne. He abandons the idea of the general curvature of space but accepts the recessional interpretation of the redward shifts in the spectra of the nebulae. His postulate is that the galaxies, endowed in the beginning with their respective speeds, were originally close together, and that their present distribution, showing velocities proportional to their distance, is the natural result of their scattering. Difficulties about this theory are that it demands very improbable initial conditions, and indicates a very much shorter time scale than seems to be required by the evidence of other astronomical facts. This last difficulty, however, also applies, though less acutely, to the expanding-space theory.

But the Universe is not only characterised by motion; it is also a Universe of continuous physical change. In the last century we had the development of evolutionary theories both in regard to the larger fields of cosmogony and the more restricted fields of

vegetable and animal life, and although our views on matters of detail may be in some respects far less assured than those of the great scientists of that period, the general principle that the Universe has come to its present state by slow but continuous processes rather than by separate creative fiat or by sudden catastrophic happenings, however violent, may be regarded as established. That catastrophic events (as they appear to us in our ignorance) occur and play their part in Nature is, of course, evident. In the heavens *novæ*, or exploding suns, are far more frequent than till recently they were thought to be. Indeed, from their observed frequency, taken in conjunction with the probable cosmical time-scale, it would seem that such an outburst may take place at least once in the life of every star! And according to Sir James Jeans the solar system owes its existence to the chance approach of another star to our sun; but despite happenings of this sort it is clearly those processes which, though slow and seemingly feeble, are ceaseless in their operation through immeasurable ages, which are the most effective agents in transforming the face of Nature. I have already mentioned that the extra-galactic nebulae show a variety of forms and physical states, and that when arranged in sequence they give evidence of a process of orderly development. Yet this development is "at a price," and that price is the gradual dissipation and loss of potential energy. Indeed, as soon as gravitational attraction in the primordial clouds of cosmic particles caused the generation of heat a movement began which has continued and must continue till the end. And, as with the birth and formation of galaxies, so with individual suns a running-down process as well as a building-up process has been and is in evidence. Think of the giant red stars like Antares and Betelgeux, commonly regarded as recently born, and consisting of enormous spheres of incredible tenuity, how much of their present sum total of energy they must lose in becoming denser and whiter and hotter! Or consider our sun already far past, as it seems, the zenith of its glory and now a yellow star on "the down grade"* how does it maintain its still amazing expenditure in radiant energy? Only—as it were—by living on itself! Huge generating machines the stars undoubtedly are, but they are using up their

* It is by no means certain, however, that the sequence of spectral types and colours in the well-known *Russell diagram* of giants and dwarfs actually represents the evolutionary history of individual stars.

capital in the performance of their functions, and, so far as science appears to indicate, the energy they radiate is lost in the vast expanse of space and cannot be gathered up again! If, then, from the point of view of the Universe as a whole, energy is conserved, yet a steadily increasing proportion of it is becoming unavailable for any useful purpose. In accordance with the second law of thermodynamics, "entropy always increases."

It would appear, then, that the evolution of suns and worlds—though we may regard it as the purpose of creation—is actually a temporary phase in a general movement towards a state of uniformity and stagnation in which nothing more can happen. Very wonderful and full of beauty is the present ordered and differentiated physical Universe which the processes of Nature have brought to pass, yet behind it all has been and is going on that ceaseless dissipation of energy which, unless there be some unknown process whereby it will be gathered up again, can only end in what we may call cosmic "death." It would seem that, like ourselves, the physical Universe has its day and then must die!

I must now refer to the two theories—we may properly call them discoveries—which more than anything else have effected a veritable revolution in our ideas concerning the Universe.

One of them is the *Theory of Relativity*, to which some reference has already been made in connection with the theory of the Expanding Universe. Of course, to attempt here any real account of Relativity would be out of the question, and the following short statement must suffice:—In former days physicists assumed, as naturally and as reasonably as in pre-Copernican times men took for granted that the earth is central in the Universe, that measurements of such things as length, duration and mass relate to quantities that are *absolute*, and would be judged to be the same by all observers, and under all conditions of observation. It was only in consequence of certain inexplicable discrepancies between experiment and classical ideas, like that encountered in the famous Michelson-Morley experiment, designed to show the earth's motion through the ether, that the need for the revision of current assumptions became apparent. We now know that measurements made with rods and clocks and scales are not absolute at all, but vary with the motion of the observer relatively to the velocity of light—the latter being unit velocity—or the limiting velocity for moving particles,

and one of the fundamental constants of Nature. The reason why this relativity of dimensions had not been detected was that terrestrial speeds in general are quite negligible in comparison with this velocity.

But there are two things which it is important to note concerning the Theory of Relativity. To begin with, it depends on the fact that our familiar three-dimensional space and time—as Minkowski showed—are merged together in such a way as to form a four-dimensional continuum. To this continuum the name space-time has been given, and it is only in this continuum of space and time in combination that *absolute* length-dimensions (called “intervals” in the language of Relativity), on which all observers, irrespective of their motion, would agree, exist.

The second point to be noted is that the geometry of this four-dimensional continuum is not strictly Euclidean.* It will, of course, be admitted that, apart from the fact that the geometry of Euclid accords in general with our common experiences and has behind it the authority of tradition, there is no reason why we should have assumed that it is the geometry of the physical Universe. We know now that it is not so, and it is to this difference of geometry that such otherwise inexplicable phenomena as the null result in the Michelson-Morley experiment are to be ascribed. At first Einstein applied the principle of Relativity to bodies in uniform rectilinear motion, and this application of it is now called the *Restricted Theory*. Subsequently he extended his investigations to accelerated motion in a gravitational field. Could he find a form of non-Euclidean geometry which would provide a natural explanation of the curved track of a planet in its revolution round the sun? His research was successful, and in 1915 he published his *General Theory*. And so whereas Newton, assuming the geometry of Nature to be Euclidean, had been compelled to postulate an attracting force pulling the planet out of its straight Euclidean path, Einstein was able to dispense altogether with a pulling force and show that in a Riemannian and non-Euclidean space-time with the right degree of curvature the path followed by a planet is that in which it moves quite naturally—apart from any outside interference. Gravitation is thus seen to be a static property of the space-time continuum in the neighbourhood of massive bodies or particles.

* It is commonly called *hyperbolic* geometry.

But nothing has been more astonishing and revolutionary than the discoveries concerning the nature of matter, the character of radiation, and all that is included in the *Quantum Theory of Atomic Physics*. In one of his books, Sir Arthur Eddington describes himself as sitting down on two chairs at his two tables to write with two pens—everything being in duplicate. One set of articles—chair, table, pen—was that of the common everyday experience of the ordinary human being; the duplicate set the same articles as they are in the mind of the twentieth-century physicist; for the hard, solid, material particles of Democritus and Dalton have now dissolved into systems of little more than electric charges. We cannot, of course, go into details of these things, but I must refer to the familiar picture of the atom as given to us some years ago by Niels Bohr, who extended the ideas of J. J. Thomson and of Rutherford. It represents it as consisting of a number (beginning with 1 in the case of hydrogen and increasing with the atomic numbers of the elements) of negatively charged electrons in rapid revolution round a positively charged nucleus—a little replica, in short, of our sun and planet system.* Only we have to conceive of the “planets” (electrons) as restricted to orbits determined by certain conditions and representing certain energy states. They may, however, jump from one orbit to another—from one of lower to one of higher energy state on receiving or *absorbing* an impulse from outside; from one of higher to one of lower energy state when giving up or *radiating* energy into space. But they can only absorb or radiate amounts which, when expressed in ergs and multiplied by the period of the oscillation in seconds, are exactly equal to a quantity known as Planck’s *Quantum of Action*.† The result of this is that radiant energy, though in some respects possessing the nature of waves, as is established by the phenomena of diffraction, also has the character of particles, or “photons,” thus carrying us back in thought to Newton’s Corpuscular Theory of Light. The problem is how to reconcile the two pictures; and although it may be said that light travels

* There is a class of stars known as *White Dwarfs* of which the density may be such that a cubic inch of thin material would weigh tons! This density is attributed to the stripping off of the electrons from the atomic nuclei so that the component particles are packed into much smaller volumes of space than is possible under ordinary conditions.

† This is always the same whatever the absorbing or radiating atom may be. It is 6.55×10^{-27} erg-seconds.

through empty space like waves, but behaves like bullets on encountering material substances, there is nevertheless a host of problems and difficulties, and inconsistencies with classical theories, which can only be removed by a new and different method of treatment. Accordingly, despite the remarkable degree of success achieved by Bohr's model, it is now for many purposes superseded by the purely mathematical and unpicturable theory of *Wave Mechanics*, as developed in the more recent researches of Heisenberg, de Broghe, Schrödinger, Dirac and others.

I now turn from our modern views of the External Universe to a short consideration of their reaction on contemporary thought.

And first we note that one result of recent research has been to make scientists themselves less dogmatic in their assertions than some of their predecessors were. So much has been discovered that has rendered seemingly impregnable theories either no longer tenable or uncertain, that, despite all the daring shown in their speculations, there is a general reluctance on the part of investigators to claim finality for their findings. An open mind which seeks and sifts all available evidence, and inquires into the smallest discrepancies between observation and accepted theory—a mind which will not allow itself to be fettered or hampered by scientific dogma or preconceived ideas—is characteristic of the present-day scientist.

Another result of our modern outlook is the *overthrow of the old-time materialism*. Relativity has completely undermined our former belief in the absoluteness of the familiar standards of measurement; it has taken away from us the all-pervading ether, or at least reduced it to a mere metrical abstraction, while Atomic Physics has shown us that matter itself is nothing more than systems of protons and electrons, which in their turn may be regarded as only distortions or warpings in the space-time continuum of a relativistic Universe! But if we accept this picture of Nature as true, as seemingly we must, however much it may need to be corrected in its details, what room is there any longer for *materialism* in the old sense of the word?

Another old-time physical concept which is in some doubt to-day is that Nature is essentially *mechanistic* and *deterministic*. It has been the habit of scientists in the past to represent the Universe as like ■ great machine in which individual parts have no freedom, but can only move and work in ■ predetermined

way; and it has been the recognised function of science to discover its laws and to describe its motions. But certain observed facts encountered in the study of radio-activity and the apparent discrepancies and uncertainties met with in the realm of atomic physics have made it difficult to fit the behaviour of Nature, considered in her more intimate and secret manifestations, into a scheme of strict causality. Accordingly, it has been suggested that the "laws of Nature," as we call them, are only *statistical laws*, or laws of average behaviour—true of particles in masses or crowds, but not really applicable to individual atoms or particles. Some of our leading mathematical physicists, like Eddington and Jeans, have taken this view, but, on the other hand, there are those, like Planck and Einstein, who are of the contrary opinion and believe that present difficulties and uncertainties will be cleared up by further research, and strict determinism be reinstated. Under these circumstances, it would seem to be well for the ordinary reader of scientific literature to be content to await events, and meanwhile to avoid basing arguments in support of freedom on conclusions which may perhaps be disproved later.

There is an interesting development in recent philosophy which it seems appropriate to mention here alongside the problem of determinism. It is called Holism—a name due to General J. C. Smuts—and is based on the concept that the whole is something more than the mere sum of its parts. A great deal has been written by thinkers like A. N. Whitehead, Smuts and others about the place of *organism* in Nature, and, although it is fully recognised that mechanism must play the major part in the development of any organic structure, as throughout Nature generally, it is nevertheless claimed that the relations and functioning of the several parts are in a sense controlled and directed by the meaning or purpose which is inherent in the organism itself—whatever it may be.

Perhaps the most striking result of modern discoveries is seen in the revival of idealistic and semi-idealistic views. The overthrow of the old materialism by the establishing of the doctrine of Relativity and the mysteries of Atomic Physics, and the seeming breakdown of classical mechanics at the heart of Nature, have combined to increase our appreciation of the significance of mind in our experiences of the external world, and to drive men back on some of the philosophical conceptions of the eighteenth century, of which Bishop Berkeley's idealism is an

outstanding example. Thus Sir James Jeans has written:—"The stream of knowledge is heading towards a non-mechanical reality: the Universe begins to look more like a great thought than like a great machine." Perhaps most of us find our convictions best expressed by Bishop Barnes when he says:—"I conceive that our minds do not create the world inasmuch as it has its being in God: it would be what it is were there no finite centres of consciousness, such as ourselves, in the Universe. But we contribute something—how much we do not know—to the making of the world as it appears in the concepts which constitute our public knowledge. Thus the world *as we know it* has not an independent existence."

The redness of a flower, the blueness of the sky, the sweetness in the blending of musical tones—such things we have long recognised as being in the mind of the percipient as his interpretation of what in physical Nature is mere movement or vibration; but we have now learnt that even such things as the properties of "material" substances, like the qualities of solidity, hardness and continuity in Sir Arthur Eddington's first-mentioned chair, table and pen, are essentially *subjective*. In short, the world *as we perceive* it is largely what we ourselves make it to be; we then project our creations on to Nature and think we find them there! Thus God in reality makes the *perceptual* world through us. Or, as Sir Arthur Eddington, in writing of the selective influence of mind in the relation between the world of physics and that of our everyday experience, has put it:—"Not once in the dim past, but continuously by conscious mind is the miracle of the Creation wrought."

At this point we pass naturally to consider the effect of the new Knowledge on Religion. Now if it be asserted that the validity of belief in God cannot be regarded as demonstrable from the conclusions of science—and it will be generally agreed that it finds its sanctions elsewhere—yet the trend of modern research has been on the whole to remove obstacles to faith and to render belief in the existence of One Supreme Mind in which all that is has its being completely *rational*. We may even go so far as to say that it would be *irrational* to assert that the Universe, which the picture we have been considering shows to be one vast organised whole, could have come into existence and have attained its present ordered state as the result of "a fortuitous concourse of atoms." But the *nature* of the Supreme

Mind—or God—is, of course, another matter, and we find a wide variety of current beliefs on this point.

It would be outside the scope of this paper to discuss the respective arguments for the doctrine of a Transcendent Creator and the various forms of pantheistic belief; but we may note that some current systems have assumed forms which are apparently rooted in the evolutionary ideas of the last century, and are known as theories of *creative* or *emergent evolution*. In these the underlying idea is that in the evolutionary process certain phenomena, such as life and mind, which could not have been foreseen as expected results of physical or mechanical processes, have “emerged,” and even God—according to some philosophies—has likewise “emerged” and is developing with the Universe. The theory of an emergent God, however, does not, as Dr. Inge—the late Dean of St. Paul’s—has pointed out, fit in well with the emphasis laid to-day on increasing entropy and the running down of the Universe! As he has said:—“A god under sentence of death is no god at all.” And we may add that such a Being could not properly be regarded as the “First Cause” or provide any explanation of the existence of the Universe. Only a *transcendent* god in whom the Universe—though evolving in time and perhaps dying with time—eternally exists would seem to satisfy the demands of human thought.

But as to the problem *Deism* versus *Theism*—belief, *e.g.*, in a God like Aristotle’s “Unmoved Mover” of the Universe, or a God who is, at least in some degree, knowable by us, and has taken the initiative in establishing a measure of fellowship between mankind and Himself—the modern scientific picture of the physical Universe can have no direct bearing. That picture may, however, seem at first sight to present an obstacle to belief in such a divine revelation as *Christianity* claims to have been made to man. We have been thinking of the millions upon millions of suns in our own and other galaxies, and even if Jeans is right in his view that life must be relatively very rare, yet who shall dare to say that in the whole vast Universe there are not multitudes of other worlds where both life and intelligence exist? In any case, it may be asked:—is it reasonable to believe that the inhabitants of this little earth, revolving round a comparatively insignificant sun in one of many millions of galaxies, have been selected for such a unique manifestation of the Divine favour as is generally understood to be claimed in

Christian Theology? Of course, no one can say that such a claim is untrue, but we have learnt a good deal about the probability of error in the case of a restricted geocentric outlook. As in science, so in religion, we must be prepared to take broad views and to re-interpret our beliefs in the light of whatever new knowledge is disclosed to us. But if we hold that God, though transcendent, is *immanent* in the Universe, and if we believe that He reveals Himself in some fashion *wherever* there are minds with the capacity for knowing Him, then the Christian belief in the inspiration of writers and teachers in all ages, and even in a Divine incarnation in human nature, will no longer appear as an improbable concept originating in man's geocentric and self-centred outlook, but as a *rational* creed. It is, at any rate, in complete accord with what our own nobler instincts lead us to postulate in a transcendent degree in the character of the Supreme Mind in whom both the physical Universe and the realm of moral values here and everywhere have their origin and their being.

DISCUSSION.

Introducing the lecturer, the Chairman (Mrs. M. A. EVERSLED, F.R.A.S.) said: The last time that I had the pleasure of attending one of your meetings, just three years ago, Mrs. Maunder told us about the very ancient beginnings of astronomy: to-day, Mr. PHILLIPS has promised to tell us about its latest discoveries.

His subject is a large one—the Universe! And the Universe has grown so much larger than it used to be; and the stuff it is made of—just the same “ordinary matter” which makes our Earth—has become far more wonderful and more mysterious.

Mr. Phillips can tell us about these discoveries, because he is himself an astronomer—his work in his own observatory at Headley is well known—and he has opportunities of meeting the men who are working in all the many branches of astronomy and astrophysics. Besides this, he is rector of the parish of Headley, and naturally is deeply interested in the effect on people's minds of these strange new ideas. It is a great privilege to listen to him to-day, and I am very happy to introduce him to you.

Mr. PERCY O. RUOFF said: In the course of this able and extremely interesting paper, the lecturer asks whether it is reasonable

to believe that the inhabitants of "this little earth" have been selected for a unique manifestation of the Divine favour. Those who accept the Christian revelation know that "God so loved the world." But whether God has given any other revelation to another world, man has no knowledge and therefore it is idle to speculate.

The statement is made on page 192 that "the general principle that the Universe has come to its present state by slow but continuous processes rather than by separate creative fiat or by sudden catastrophic happenings, however violent, may be regarded as established."

I desire to ask this question: Does the lecturer believe that there was a creative fiat at any time?

Lieut.-Col. MOLONY said: The first of the Thirty-nine Articles of the Church of England says, "God" is "of infinite power, wisdom and goodness." The discoveries of our astronomers have helped us to realise what that word "infinite" means. Our lecturer, on his last page, has attended to the difficulty which many feel in believing that the great Creator of all things can care what happens to the denizens of this little earth, which must appear but as a speck of dust in His sight.

But there is a reason for the large size of the solar system. When God decided to give Free Will to men He had to take precautions that that great experiment should not end in disaster. If the solar system had been much smaller than it is, men, in their perversity, might have found means to interfere with its smooth running.

It has been often pointed out that the discoveries made by our microscopes have partly balanced those made by our telescopes. The smallest gnat that flies is of wonderful and complicated structure. Men and women are very big compared with these insects, and this consideration should partly restore our self-respect.

But there is a still more important matter to consider. Love has nothing to do with size. Hence it is conceivable that God seeks our love, and for all these reasons we should hold on to our Christian faith, and refuse to be overwhelmed by the vast size of the universe.

Lieut.-Col. T. C. SKINNER said: I am glad to be able to add my tribute of thanks to the author for his beautiful paper. Having

been in correspondence with him for a year past in reference to it, I can judge better, perhaps, than most what it has cost Mr. Phillips in his busy life to give us this paper, and he has indeed put us under great obligation. One would like to touch on many of the interesting points raised, but time fails and I must limit myself to one.

The author refers on page 191 to "evolutionary theories both in regard to the larger fields of cosmogony and the more restricted fields of vegetable and animal life," and here it seems to me he makes a very wise discrimination. Cosmic evolution, as I understand it, implies, after initial creation of some sort, an ordered development in accordance with the laws established by the Creator himself, to be succeeded, perhaps, by decay when the purpose is served. With such evolution I imagine few of us will disagree.

Organic evolution, on the other hand, postulates development of life in unbroken continuity from the lowest forms to the highest, including man, and makes man to be but an improved animal in the upward scale of development. Were the idea scientifically proven, reason would that we accept it at whatever cost; but such is far from the case. Instead, therefore, it must be weighed in the balance and, if found wanting, rejected; and I submit to you that one of the greatest services the Victoria Institute has rendered to science in the past seventy-two years of its existence has been the weighing up process it has established and the strong check thereby exercised on unproven hypotheses which, by reason of premature and insistent publicity, have already done much harm to immature minds.

Hence the advantage that this society offers to devout scientists and philosophers of differing views to meet and discuss their differences in friendly debate, and often compose them in the peaceful atmosphere of sweet reasonableness. To this end the paper we have heard read to-day is an eminent contribution.

Mrs. MAUNDER said: There are two points in the paper by Mr. Phillips that I should like to emphasize. The first is the paralysis in astronomy from just after the golden age of Greek culture until the time of Copernicus. This was, I believe, partly due to the attitude of the philosophers of whom Socrates is the arch type; and, as an example, I will quote one of his dicta: "We neither hear

nor see anything with accuracy. If, however, these bodily senses are neither accurate nor clear . . . must it not then be by reasoning if at all, that any of the things that really are become known to it? And surely the soul then reasons best when none of these things disturb, neither hearing, nor sight . . . but it retires as much as possible within itself . . . and . . . it arrives at the discovery of that which is."

This is, indeed, the unforgivable sin in science, the denial of the necessity of observation and of making the facts fit the hypothesis, *not* the hypothesis fit the facts.

The paralysis from the first century of our era was also partly due to that mortal disease of astronomy—astrology which became prevalent throughout the then civilised world through the teachings of one Teuchros (or Zeuchros) the Babylonian. As an example of his misdoings: Teuchros devised a system of figures analogous to the zodiacal figures round the celestial equator which were called "houses" and their figures were confused with the zodiac. But the stars that lie in the zodiacal belt (the Ecliptic) are permanent, but the stars round the equator must change continually since the equator itself shifts in space with the precession of the Equinoxes. This confusion of the zodiacal constellations and the "houses" is a confusion of the Ecliptic and Equator, and that in astronomy is as bad as when "the bowsprit got mixed with the rudder sometimes" is hopelessly bad in navigation.

In my second point that I would emphasize, Mr. Phillips always looks forward in time, but I prefer rather to look backward as time seems not quite so long in that direction. He shows that practically all the extra-galactic nebulae "are stampeding away from us as if our particular stellar system were the plague spot of the universe: the velocity of their retreat is on the whole proportional to their distance, those furthest off receding the most rapidly . . . 20,000 miles per second!" and that this same stellar system of ours is rotating and "at the distance of our sun from the hub, the time required for a complete revolution more than 200,000,000 years!"

I was present at that meeting of the Royal Astronomical Society, when Professor de Sitter reversed the problem of the ever-faster recession of the nebulae, so that it became their ever-slowing

contraction towards a point of time of two to ten thousand million years ago. Professor de Sitter then turned to Dr. Jeffrys and said: "You know the significance of those figures," for these were the limits assigned by Dr. Jeffreys to the epoch of the Solidification of the Earth's Crust—the shorter date being the preferable one. Thus, since the Earth took to itself an outer crust, some 2,000,000,000 years ago, our Galaxy has made ten revolutions. I wish we could have had some stellar observations of, say, 100 million years ago when our solar system had moved to the other point of the compass. It might not have made very much difference to our outlook on the Milky Way itself, but it would certainly have given a very greatly altered aspect to our nearest galactic neighbour, the Andromeda Nebula and its smaller companion.

WRITTEN COMMUNICATIONS.

Lieut.-Col. L. MERSON DAVIES wrote: I have read the Rev. Phillips' paper with great interest. It affords an able summary of a very large subject, and I admire the succinctness and clarity with which he covers so much ground. As a description of the present state of astronomical knowledge and connecting theory, it could hardly be bettered; but I would utter a *caveat* where the author seems to go beyond the explanation of these things.

Thus he states (on page 192) that it is now "established" that "the Universe has come to its present state by slow but continuous processes rather than by separate creative fiat or by sudden catastrophic happenings." I would point out that if, as is argued, everything since the beginning has consisted in a continual running down of the cosmic machine, then something ultra-creative must have occurred at that beginning in order to supply what all subsequent ages have failed to exhaust. The author's words also show that this supposedly continuous subsequent process may claim to exclude "sudden catastrophic happenings," although it includes such events as Sir James Jeans' "Tidal Theory" postulates—events which are not only sudden, but far more catastrophic than anything pictured by Cuvier. Thus the opposition between continuity and catastrophism is not an opposition between smooth and uneven running as such, but between a running which excludes and

one which includes Divine Interventions. Continuity, it seems, will even allow of creation in the beginning; but it allows of no subsequent interference with natural processes.

That is the crux. So I would point out that fuller seeming evidence of continuity (*i.e.*, history excluding Divine Interventions) is found in geology than in astronomy. The gaps to be bridged are smaller; and the actual past is seen (to some extent) at first hand in the fossil record. But even in geology, as I have elsewhere shown, continuity is anything but demonstrable; so it is one thing to study a scientific theory appreciating its coherence and plausibility, and quite another thing to regard its corollaries as "established."

As an instance of apparent over-confidence in universal mechanics I may cite the reference (on page 197) to the supposed fact "that mechanism must play the major part in the development of any organic structure"—*Must* it? Why? And where is the evidence that it does? We are so used to the endlessly repeated fact that minute human cells develop into men, and the men grow old and die, that we come to take these still inexplicable facts for granted, and attribute them to "mechanism." No form of words, however, that has ever yet been designed to account for these things on mechanistic lines will stand a moment's examination by a capable critic. If ■ Peter Pan among us actually refused to grow old and die, he would violate all known precedent but no known mechanics.

Yet we confidently talk of mechanics in this connection. It proves our subjectivity. Let us beware of allowing this subjectivity to shake our faith in Revelation—above all when subjectivity takes the form of belief in "continuity," excluding belief in Divine Interventions. Scripture definitely warns us against opposition taking that form.

MR. AVARY H. FORBES wrote: One cannot but wonder how a divine can have made himself so familiar with up-to-date physical science as to be able to write such a paper as this, in which he sketches the history of astronomy from Aristotle to Einstein, with the approved terminology of experts—"stellar systems," "globular clusters," "relativity," "novæ," "entropy," "hyperbolical geometry," "four dimensional continuum," "ergs," etc., etc.

Mr. Phillips is very optimistic and speaks of "the overthrow of old time materialism," as the result of modern science. In this I can by no means follow him. Scientists may be "less dogmatic"; they are bound to be so, since almost every text-book of science is out of date after twenty or thirty years; and the only abiding tendency has been to drive God out of the Universe, and install man in His place! Some few scientists are really God-fearing men; but they are the exception, and are rather timid in showing their colours.

The Old Testament saints, who knew nothing of the revelations of our telescopes, could yet say: "when I consider thy heavens, the work of Thy fingers, the moon and the stars which Thou hast ordained, what is man?" Our discoveries and revelations have had the opposite effect and the rank and file are only too ready to say "Who or where is God? We cannot find Him. Man is the greatest being in the Universe, and master of his own destiny."

Mr. Phillips speaks of Relativity as "driving man back on some of the philosophical conceptions of the eighteenth century, of which Berkeley's Idealism is an outstanding example." An example of what, may one ask? Berkeley's Idealism is no "example" of anything. It is an argument *sui generis*, and an epoch-making one; and as Professor Bain remarks, "all the ingenuity of a century and a half has failed to find a way out of the contradiction exposed by Berkeley." To master his argument *fully* is almost as difficult as to master that of Relativity.

How widely misunderstood Berkeley still is, even by philosophers, was shown when Dr. McCrady of the University of Mississippi, U.S.A., gave a paper here in 1935 on Berkeley's Idealism. It was read before the "Philosophical Society of Great Britain," yet (except for a few lines sent in by Mr. W. E. Leslie) there was only one speaker besides the Chairman (who happened to be myself). Rev. H. C. Morton, Doctor of Philosophy, claimed to have reduced Berkeley's argument to an *ad absurdum* conclusion, which only shows how completely our esteemed and lamented friend misunderstood the argument.

How many scientists have really assimilated Berkeleyism, I do not know. Probably very few. And those who have, as well as those who have not, simply ignore it, as it tends to belittle their craft by proving that they are dealing with shadows *without any*

objective existence. Yet those shadows—that materialism—is responsible for our “new morality,” which consists in breaking down the barriers against immorality, seen in nudist bathing and nudist homes, new divorce laws—increasing divorce cases by some 900 per cent., and relegating Sunday to a day of work and amusement. Only the other day the Bishop of London told of 100 children, 50 of whom could not tell what happened on Good Friday! No wonder when the teachers are led by such men as Messrs. G. B. Shaw, Aldous Huxley, C. E. M. Joad, all on the side of the Anti-God Movement. *The Teachers’ International* says that “religious faith and the idea of God must be replaced by science and the idea of the machine.”

Dr. Gaster wrote recently to our Hon. Secretary, Col. Skinner: “It is sad to see morals declining, faith disappearing, ignorance prevailing . . . the flood of barbarism which threatens to sweep everything into the abyss of ignorance, materialism and brutality.” Such testimony could be multiplied ■ hundredfold.

W. BELL DAWSON, M.A., D.Sc., M.Inst.C.E., wrote: May I say that the clear summary of the recent views of the physical Universe, which the Rev. Mr. Phillips gives in his paper, is of extreme interest to me, as at my present age (82) I can well remember the whole fascinating panorama of new discovery regarding the structure of the atom and the nature of the Universe. My own researches, during thirty years, into the tides and currents of Canada, a then unknown field, familiarised me with wave progression, in amplitudes and periods under astronomical dominance.

To understand the Universe, we should surely begin at the beginning when God existed alone, before any material things had come into being. For God is independent of the existence or non-existence of time and space. As the Scriptures put it: “He inhabiteth eternity.” We may realise accordingly that “time and space are concomitants of creation,” as I wrote more than 50 years ago; because there was no need for time and space to exist before matter. For there can be nothing material in a mathematical point; and some fraction of time is essential to any chemical action. We read in the Psalm of Creation (Psalm civ) that God “stretched out the heavens,” to give room not only for material things but for living beings also, as indicated further in Isaiah xl, 22.

On the question of life in other parts of the Universe, we need not limit our view to the present, for much may be in preparation ; but in any case we have little basis for any opinion apart from hints that God may give us in His Word. The following may be put forward as what we may perhaps gather : This earth is the first inhabited world, in which the great moral and spiritual problems are being worked out ; including the outcome of free will, conduct unrelated to the will of God, sin and redemption. (For it is well to remember that the whole *material* universe as well as creatures under the dominance of instinct, act in perfect accord with the will of God.) The solution of these problems as carried out through Christ in this world will be the great object-lesson, the example and warning, to all future intelligent beings for whom the Universe is now being prepared.

Now that we are accustomed to "hundreds of millions of years," we may better understand what is meant in Scripture by "the ages to come," and "as long as the sun and moon endure ;" and thus how those now redeemed will be to the praise and glory of God by Christ Jesus throughout all ages, world without end. For the Lord God may have plans for the future beyond our comprehension, based upon what He is now accomplishing in this world during less than a hundred centuries. These plans may even extend beyond the duration of the earth as it now is ; for we are told that the time may come when God will lay aside the heavens as a worn-out garment and change His vesture (Psalm cii, 25-27, quoted in Heb. i, 10-12). Modern research seems now to point towards the same outcome ; but it cannot foresee the purpose of God to be that righteousness may dwell in the new earth and the new heavens.

THE LECTURER'S REPLY.

I am grateful for the very kind expressions of appreciation of my paper.

The part which has called forth most comment and criticism is the statement on page 192 to the effect that the general principle of creation "by slow but continuous processes rather than by separate creative fiat or catastrophic happenings may be regarded as established." Some of the speakers, like Lieut.-Col. Skinner, seem to have no objection to this as regards the larger fields of cosmogony

and inanimate creation generally, but have expressed either doubt or disbelief concerning evolution in the varied manifestations of life, including especially the appearance of man.

I can lay no claim to any special knowledge of biology, and on this point will content myself with saying that in my view there is nothing whatever derogatory either to God or Man in the doctrine that it is from primitive and lowly forms, through æons of effort and conflict and by methods which it is for the biologist and the psychologist to investigate and describe, that God has brought about that nature which we humans possess, and which is endowed with such extended mental and spiritual faculties. Whether such things as *life* and *mind* are to be regarded as natural developments in an upward evolutionary movement, or as things which have "emerged" (in the common philosophical sense of the word), or as brought about by special acts of Divine intervention, man is in any case *God's* creation. Except, then, for the traditionalist, the problem of *how* man came to his present state is immaterial to the validity of religious belief, and one on which we may accept without demur the conclusions of scientists whenever it is felt that such conclusions are justified. But some of those taking part in the discussion have questioned the general principle of continuous development as against separate and disjointed creative fiat. In regard to this it seems sufficient to point to the slow and continuous changes which are, as a matter of observed fact, taking place throughout the universe to-day, and to which—it is believed by many of our leading authorities—there can be no halt till all available energy has been dissipated. Moreover, the observed processes of Nature are found—at any rate, when viewed macroscopically—to be not at haphazard but uniform, and to be in accordance with definite formulæ which we term "Laws of Nature." In short *evolution*, in the sense of ordered and continuous change, is unquestionably a present fact, throughout the universe, and unless there have been violent discontinuities in the past—for which there is no shred of evidence—it is to evolutionary processes that we must look for an explanation of its past history. That events which we call "catastrophic" have occurred, and do occur, we know—such as the supposed approach of our sun and another star billions of years ago, and the exploding suns, or *novæ*, of which we ourselves have seen many examples—but these

things are catastrophic only to us in our ignorance of all the contributory causes. It may be of interest to point out that in the case of the novæ it would seem that we already have a glimmering, and indeed more than a glimmering, of what those causes are.

But if it be granted that the evolutionary principle provides a satisfactory explanation of what is happening in the universe to-day, and has happened throughout past ages, there still remains the problem of its *origin*. Here, of course, we step outside the sphere of physical science, the function of which is to give a rational and intelligible account of the universe *as a going concern* and not to explain how it came into being. Questions of origin and kindred problems belong rather to the domain of philosophy. And here, in answer to Mr. Ruoff, I would say I believe that all that has been, is, or shall be eternally *exists* in the Mind of God. The word "fiat" involves the concept of *time*, and while not denying the validity of the time order as, like that of space, an essential condition of our present powers of perception, I, in agreement with the view expressed by Dr. Bell Dawson, cannot conceive of God as limited or restricted by any such necessity. The statement, then, that in the beginning God created the heaven and the earth by saying "let there be" "and there was"—is an expression in language belonging to our human and temporal experience of what in reality is outside the order of spatio-temporal relations. Nevertheless, regarding the matter from the point of view of the physical Universe with which Science deals, we may—and I think we *must*—look for a start in some creative thought or "fiat" of a transcendent God.

I am in much sympathy with Mr. Forbes in his admiration for Bishop Berkeley's idealistic philosophy, as I think my remarks in the paper fully show. But Mr. Forbes objects to my reference to it as an *example* of anything and describes it as *sui generis*. This may in some respects be perfectly true; nevertheless, it was *one*, if the most striking, of the forms of reaction about that period against the older philosophies in which it had been sought to explain everything in terms of matter and motion. And I must protest against the assertion that scientists ignore Berkeleyism on the ground that "it tends to belittle their craft by proving that they are dealing with shadows without any objective existence." So far as concerns the students of physical science *as such*, philosophy lies outside

the scope of "their craft," which is to investigate and describe the *phenomenal* world, and yet actually the coming again into partnership of science and philosophy—largely through the recent development of physical theories—has been one of the outstanding features of modern thought. This is implied in what is said in the paper about the overthrow of the old materialistic ideas and the marked tendency nowadays to interpret the physical world in terms of mind and mental processes.

Mrs. Maunder's reference to one of the sayings of Socrates, the spirit of which seems to underlie the general intellectual attitude of mediæval Scholasticism, is apposite here. It reminds us of how inevitable it was that science should separate itself from philosophy if there was to be any development of knowledge at all. It is in their re-association that we have the greatest hope for the intellectual development of the human race in the days to come.

I must now turn to some remarks made by Lieut.-Col. Davies, who objects to the statement on page 197 that "mechanism must play the major part in the development of any organic structure." Perhaps we assign somewhat different meanings to the word *mechanism*. In the sentence quoted I used it as including all those physical "forces" and processes such as gravity, cohesion, electrical action, capillary action, chemical reaction, etc., which are concerned in the formation of bodies in general, but the point I specially referred to is the fact that there is something in an organism over and above these things; there is clear evidence of some purposive control or direction to an end.

With Lieut.-Col. Moloney's remarks concerning mere size and love I am, of course, in complete accord, but it was to meet what I think is the *main* difficulty for many who, finding themselves confronted by a Universe of such immensity, desire some assurance of the reasonableness of their faith that I followed the line I did. Belief is surely easier if we conceive of the Supreme Mind as *normally* revealed—that is *wherever* in the Universe there have been, are, or will be minds capable of accepting such revelation, just as the sunlight is perceived wherever there are eyes to see. In other words, we may think of the Divine love not as limited or shown uniquely to mankind but as universal in its scope and operation.

809TH ORDINARY GENERAL MEETING.

HELD IN COMMITTEE ROOM B. THE CENTRAL HALL,
WESTMINSTER, S.W.1. ON MONDAY, APRIL 5TH, 1937,
AT 4.30 P.M.

SIR RONALD STORRS, K.C.M.G., C.B.E., IN THE CHAIR.

The Minutes of the previous meeting were read, confirmed and signed. In the absence of the author, Col. S. F. NEWCOMBE, D.S.O., had kindly undertaken the reading of Dr. Masterman's paper entitled "The Dead Sea and the Lost Cities of the Plain," which was illustrated by lantern slides.

THE DEAD SEA AND THE LOST CITIES OF THE PLAIN.

By E. W. G. MASTERMAN, Esq., M.D., F.R.C.S., F.R.G.S.

THE Dead Sea occupies the lowest part of that unique feature on the earth's surface, the Jordan Valley. This valley owes its existence to a great "fault" or rupture having occurred in the strata of rocks during their gradual elevation from under the sea to form the mountain ranges of western and eastern Palestine during the latter part of the Cretaceous or early part of the Tertiary period. This "fault" extends northwards through Syria and southwards to the Gulf of Akaba—a distance of 360 miles—not to mention its very probable further extension into the well-known rift valley of Central Africa. Along all this great crack the layers of rock to the east have risen hundreds of feet higher than on the west, and along this line a long slice, as it were, of the crust of the earth has dropped thousands of feet. It does not belong to this paper to discuss the fascinating subject of the Jordan Valley as a whole but only the lowest part where lies its famous lake, 47 miles long by an average of 9 miles wide. This lake, known in the Bible as the Salt Sea (Gen. xiv, 3, etc.), owes this name to the fact that its waters contain the concentrated mineral salts of a vast lake which once—in early glacial times—extended



190 miles in length, 30 miles in breadth, at a level of 108 feet above the level of the Mediterranean Sea. The volume of this prehistoric lake was four or five times that of the present lake. Diminished rainfall and the disappearance of the ice cap on the mountains around led to a gradual drying up of the vast inland sea, during the course of which desiccation many terraces or raised beaches were left which can be traced to-day at many varying levels.* The lake bottom, north of the present lake, consisting of hundreds of feet of stratified marl, became a long plain through which the Jordan has cut a very winding path, leaving grotesque hills and intricate valleys. The outer edges of this great lake-bottom can be seen clinging to the sides of the cliffs in the neighbourhood of the Dead Sea at a height of about 250 feet above its level. From this the lake bottom slopes downwards towards the centre of the valley, where it is steeply cut by the Jordan and its tributaries into deep channels. At the mouths of each valley the streams have cut through the gravelly deltas formed by their many tributaries where in earlier ages they were mighty rivers. The Jordan Valley as a whole is known in Arabic as el Ghor, but the deeper inner valley—some half a mile across—is called el Zor. This latter, an area overgrown with tangled trees, bushes and reeds, is called in the Old Testament the swelling (R.V.) or pride (R.V.) of Jordan (Jer. xii, 5). In ancient times it was the haunt of wild beasts and still harbours a few wild boar. When the snows of Hermon melt, the Jordan overflows its banks (Jos. iii, 15) and floods much of this inner valley, through which the muddy, swift-flowing Jordan carries vast quantities of the old limestone deposits into the Dead Sea.

It is from the Jordan and its tributaries that the Dead Sea chiefly derives its waters, receiving, it is calculated, altogether 8,500,000 cubic metres of water daily. Besides the main supply, the Dead Sea receives in the rainy season much surface water, and there are contributions from hot springs in the course of the valley—notably at Tiberias, at el Hamma in the Yarmûk Valley and from the springs of Hammam ez Zerka in Wady Zerka Mâin (the ancient Callirrhœ). Though these last contributions are not great compared with the total, they are, as we shall see, of

* According to Prof. Huntingdon, raised beaches can be traced at 1,430, 630, 430, 300 and 250 feet above the present level, and there are several minor beaches lower down.

considerable commercial importance. The level of the surface of the Dead Sea is now about 1,300 feet below "sea level." It is probable that during some periods of human history the level may have varied, but such variations have certainly not been great. A state of equilibrium has long ago been reached. It was my privilege for thirteen years before the Great War to take regular measurements of the seasonal changes of level and since 1929 they have been resumed on more scientific lines. We know that during the rainy season and the river-floods of spring the level rises, reaching its highest about April and its lowest in November. But the difference is not great—a foot or foot and a half as a rule (my highest seasonal rise was 3 feet). The amount depends upon the total rainfall over the area draining into the Jordan Valley, affected somewhat by a prolonged rainy season, heavy snows, and by the height of the summer temperature. Besides this, annual change of level observations of various kinds made over the past eighty-seven years show that there has been another important change of level. Since the observations of Lieut. Lynch, of the U.S.A. Navy, in 1847, the level of the sea has certainly risen some twenty or more feet. This rise reached its highest in 1929 (which is believed to have been the highest since 1650) and since there has been a fall of about 9 feet. Such moderate variations of level may have occurred during the historic centuries. Some authorities think that the vast amount of debris carried down by the rivers and streams must have substantially affected the level by raising the lake bed and advancing its coast, particularly at the Jordan delta. During the last eighty years or so the rise of level has been marked by (1) the disappearance of the small island near the north shore known as the Rejm el Bahir, whose highest point reached by sounding is now $10\frac{1}{2}$ feet under the surface, (2) the very considerable advance southwards of the water over the Sebka—the mud flats to the south, and (3) the disappearance of the ford which once ran (2 miles) from the western shore and the most southerly point of el Lisan. The explorers Irby and Mangles* watched a caravan of animals and men crossing through the sea, and there were people living before the war who stated that their fathers had seen the ford in use. An airman has recently reported that when flying over the sea he could trace

* See their *Travels*, p. 454.

the course of this crossing as a white line under the water, but as a ford it has long ceased to be used.

The Dead Sea is about 47 miles in length and has an average breadth of 9 miles. Its area is calculated as about 300 square miles. It is divided into a northern, two-thirds, where the water is deep, especially on the east side, where a sounding of 1,300 feet has been made, and a southern bay of variable extent and depth, but nowhere over 30 or 35 feet, and much of it quite shallow. Possibly this portion is of less ancient date than the rest of the lake. The waters here are more saline and salt crystallises out at the bottom. Here, running parallel with the western shore, is the extraordinary ridge of rock salt known as Jebel Usdum. This hill, which runs along the shore for nearly 7 miles, rises to a height of 600 feet above the lake. The great mass of the hill is of the same marly substance as the rest of the sedimentary deposit, but under this, rising from the Dead Sea level to about 100 to 150 feet, it is a mass of crystallised rock salt. In many parts the rock is hidden by overlying marl, but in other parts furrows and caves have been made by water action, and the salt is exposed in beautiful and complicated forms. In the cave grottos there are stalactites and stalagmites of greenish translucent salt, and in the furrows the salt has been scored into intricate shapes of all kinds—pillars have at various times been pointed out as "Lot's wife." When I was there we lunched in one of these beautiful grottos, but the well-known large cave, which used to be approached by a road between the lake and the hill, can now only be reached by boat on account of the rise of the lake's level.

Roughly dividing the lake into its two parts is the curiously shaped peninsula known as el Lisan—the tongue. Its outline is like a boot with its toe pointing north. The seaward aspect of this peninsula consists of soft beds of marl with deposits of salt and gypsum rising to about 40 to 80 feet above the sea's level, and extends some seven miles from north and south, terminating in two points, not so marked now as formerly because of the rise of level; these are called respectively Point Costigan on the north and Point Molyneux on the south, after two explorers who lost their lives in consequence of the hardships they underwent in navigating these waters.

The scenery of the Dead Sea is attractive. There are frequent winds to ruffle its surface and produce sparkling waves. There

is commonly a slight haze. Storms arise at times perilous to boats because of the weight of the waves. There is, of course, no foundation whatever for the evil reputation once given to it nor for the mediæval tale of a poisonous miasma which, it was said, caused birds flying over its surface to perish. I have seen a beautiful flight of flamingos crossing its waters, and wherever the not infrequent springs along its shores produce little oases, there is abundant bird life. At such places small fish can be seen darting about close in shore, but none can live in the main mass of water. The attractiveness of the northern shores, now but an hour's motor drive from Jerusalem, is being increasingly modernised by immigrants to Palestine, and passing the Allenby bridge to Jericho one evening recently I noticed a long line of twinkling lights along the shore, reminding me of one of our sea-side resorts seen at night from the sea—on, of course, a small scale. Sea-bathing is becoming increasingly popular. Along the western border of the Dead Sea the mountains fall steeply to the water at several places, notably at Ras Feshkhah and Ras Mersid; many valleys debouch into the lake and there are several springs, of which the copious warm springs of Ain Feshkah, near the N.W. corner, and Ain Jidy (Engedy)—300 feet above the sea—are the most famous. Some ten miles farther south of Ain Jidy is es Sebbeh, the site of the famous Masada where the last remnants of the Zealots, escaped from the siege and destruction of Jerusalem, for many months held out against the might of Rome and finally preferred self-destruction to falling into the enemies' pitiless hands. From the summit of this lofty and precipitous rock the remains of the wall of circumvallation, with its ruined Roman camps, are clearly traceable nearly 2,000 feet below.

The eastern shores of the Dead Sea are in great part precipitous, and for miles the rocks descend direct to great depths. There are two famous valleys, each with its delta and a very striking entrance into the Dead Sea between perpendicular cliffs of coloured sandstone. The northern one is the Wady Zerka Mâin. In its higher reaches rise the famous hot springs, known in Roman times as Callirrhoë, to which Herod the Great came when a dying man in hopes of relief. The southern valley is the Mojib, the biblical Arnon, which traverses a short but very deep course through the mountains. About half-way between these two valleys, some five miles east of the Dead Sea, is el Mukâwer,

the site of Herod's fortress palace Machærus, where probably St. John the Baptist was executed. Some thirty miles farther south lies the town of Kerak, which is connected now with the southern bay of the Dead Sea by a good motor road. During the Great War vast quantities of wheat from this region were brought by boat to the north end of the Dead Sea and thus into Palestine. The position of Kerak is one of extraordinary natural strength. It was Kir Haresheth of Moab in Old Testament times (2 Kings iii, 25; Isaiah xvi, 7-11). In the Middle Ages it was powerfully fortified by the Crusaders, and later after they left the walls and forts were added to and strengthened by the Arabs. It is to-day a picturesque survival, but within the ancient ruined walls the town is expanding. It is now an important centre, being connected by motor roads with the Hejaz railway at Kutrani, with Maan by way of Tafeleh and Shobek, and with the Dead Sea. There is a regular omnibus service between it and the capital, Ammān.

The chemical composition of the Dead Sea water is one not only of general interest but now one of considerable commercial importance. It is well known that the density is such that the human body cannot sink. Near the surface the specific gravity is subject to slight variations according to the locality, but at a depth of 250 feet it is constant at 1.235, because here the water has reached saturation point and at such a depth the temperature also is constant at 21° C. A litre of water contains about 316 grammes of salts, of which half is magnesium chloride and one-quarter sodium chloride or common salt.* The commercially valuable salts are the potassium chlorides, of which there are only 4.6 per cent. of the total salts, and the bromides, of which there are only 1.9 per cent.

The composition of the Jordan water alone adequately explains the presence and relative quantities of most of the salts with the exception of the bromide. It is thought that this last is supplied chiefly from the hot springs on the course of the Jordan

* The exact analysis is :—

Magnesium chloride	163.7	} = 316 grammes.
Sodium chloride	...	...	...	84.2
Calcium chloride	...	...	...	47.5
Potassium chloride	...	...	..	14.7
Magnesium bromide	...	...	...	5.9
Calcium sulphate	0.6	

and its tributaries and also certain subterranean hot springs along the western shores. The Palestine Potash Co. commenced experiments in 1921 with a view to obtaining the best method of recovering the potash by fractional crystallisation under solar evaporation under the special climatic conditions of the Dead Sea. These were continued till 1925, when the company commenced experimental production. At the beginning of 1930 they began extracting and developing the salts of the Dead Sea on a commercial scale. Their main works are on the level ground at the north end of the sea where great evaporation pans have been constructed. Since 1932 the water has been pumped from the bottom of the sea through a 30-in. pipe, 2,500 feet long, into narrow shallow pans placed for two miles along the north shore on both sides of the Jordan. The output of the last years has been between 25,000 and 30,000 tons of potash and 1,000 to 1,200 tons of bromide annually. An extension of plant is now being made at the southern end of the Dead Sea, where 22 square miles of suitable land is available. It is hoped eventually to bring the total capacity of the plants to 100,000 tons of potassium chloride annually. Work was carried on under considerable difficulty during the recent strike because, this being a Jewish undertaking, the convoys to and from the Dead Sea were tempting objects for attack by the disgruntled "Arabs."

As will be seen, the main products sought are the potassium chloride and the magnesium bromide. Notwithstanding the low content of the former in the water, ranging from 1.1 per cent. to 1.4 per cent., it is possible by the process of fractional distillation to eventually recover 80 per cent. The various salts crystallise out during evaporation in a certain order. During the first stage—the first pans—90 to 95 per cent. of the sodium chloride (common salt) crystallises out;* the next two series of pans are concerned with the concentration and crystallisation of the potash salts; in the third stage magnesium chloride crystals are obtained, and the final "concentrated brine" is pumped into the bromide factory where the bromide is extracted by treatment with chloride and steam. "In the production of potash, the Palestine Potash, Ltd., does not import any raw

* Before the War Arab smugglers used to obtain a considerable quantity of common salt in primitive pans at the same spot. As, however, salt was a government monopoly, if they were caught bringing it into the towns they were liable to lose both their salt and their baggage animals.

materials apart from the fuel oil for drying the wet potash, which contains about 12 per cent. moisture, and Diesel oil for generating electric power. All the main 'raw materials' used in the production of potash, the waters of the Dead Sea, the sun, and the fresh water of the Jordan, are available on the spot."*

There is another product of the Dead Sea which was considered of great importance at the beginning of the Christian era, namely, asphalt or bitumen. In Josephus, Pliny, and other classical writers, the name Lake Asphaltitis was given to the Dead Sea, and undoubtedly some asphalt was exported to Egypt. Though small quantities of bitumen are found among the pebbles along the shores and large masses have occasionally—particularly after earthquakes—floated to the surface, no deposits of commercial importance have been exploited. There must be considerable deposits somewhere on the sea bottom.

It is a far cry from a discussion of the commercial possibilities of the Dead Sea to the topography of the Bible story of the destruction of the "cities of the plain" and the escape of the righteous Lot. To-day the Arabs—who are familiar with the story through the Koran—call this lake the Bahr Lût or the Sea of Lot. Biblical students have been speculating for many decades as to where stood the fair plain and its cities—of which Sodom and Gomorrah remain for all times as the types of special wickedness. In considering such a question it must be always remembered that there have been very considerable changes in the configuration of the sea, especially on the north. Here year after year the Jordan has been building up a delta of deposits. It has been calculated† that since the time of Abraham it is a conservative estimate that the Jordan and its tributaries between the Lake of Galilee and the Dead Sea have brought down sediment enough to have encroached upon the sea to the extent of 15 or 20 square miles. Similar encroachment must have occurred on a smaller scale from all sides, causing a tendency to the raising of the level of the water. But it would be dangerous to argue, as has been done, that the "cities of the plain" lie below the waters of the southern bay of the Dead Sea. There is

* Quoted from "The Dead Sea, a Storehouse of Chemicals," by M. A. Novomeysky, a paper read at the Institute of Chemical Engineers, 1936. Those wishing for full particulars are referred to this paper.

† Prof. G. F. Wright.

nothing to make this probable, and competent modern geologists* who have studied the question on the spot, all argue that the southern basin dates back to prehistoric times. That Jebal Usdum contains an echo of Sodom is sure, and the pillars of salt which have formed there from weathering of the rock salt have frequently been associated in men's minds with the story of Lot's wife. But neither the southern bay nor the adjoining mountain of salt has any other connection with the destroyed cities. It was supposed by many that a Zughor or Sugos mentioned by Arabian geographers at the base of the mountain of Moab—where there is an oasis—might be the site of Zoar. Archæologically there is nothing to support this view. The remains here have been explored and are not pre-Roman. Dr. Albright, searching the whole region S.E. and S. of the Dead Sea, did not find any remains which go back to the time of Abraham.

At the N.W. corner of the sea we have a Wady Kumran which may have an echo of Gomorrah, but this was, I can state positively from personal knowledge, never the site of any large city. Gen. xiii, 10ff., certainly seems to indicate that the "cities of the plain" were to the north in the well-watered "plain of Jordan." The south of the sea would have been quite invisible from Bethel or Hai.

Recently Père Mallon, of the Biblical Pontifical Institute of Jerusalem, has put forward the most hopeful suggestion considered archæologically which has appeared. Near the N.E. corner of the Dead Sea there is a large relatively level area which can be described as the "Plains of Moab" (Numbers xxxiii, 48). In the centre of this area some $3\frac{1}{2}$ miles north of the Dead Sea, 3 miles east of the Jordan, and $2\frac{1}{2}$ miles west of the mountains, there is a double Tell known as Teleilat Ghassul. This site was excavated in 1929-30 by Père Mallon with interesting results. He found that this mound—and there are other mounds of a similar kind in the vicinity—covers archæological remains belonging to an age which corresponds with the traditional date of the catastrophe which overthrew the "cities of the plain," viz., the Early Bronze Age. Further, there is evidence that the town which stood here underwent destruction by fire at four periods with no great interval between; on each occasion the town was rebuilt on the ashes of its predecessor. "There can

* Koepfel, Picard, Blanckenhorn.

be no doubt that the fourth town sank in a vast conflagration," "heaps of ashes, with broken and calcined stones, fill the ruins and at points appear on the surface." The site was never re-occupied.

Here we have, perhaps, the best suggestion *if* the site of these cities in the "plain of Jordan" are to be found anywhere. There is nothing positive to identify the site, and the civilisation indicated by the remains found is primitive. Certain inscribed pebbles found here are no exception. They are of interest archæologically but are of no assistance in identifying the site or explaining its history.

We must therefore leave this question of the site of these cities as one not yet solved, realising at the same time that the surface changes on the Jordan plain to the north of the Dead Sea have been so considerable over the last four thousand years as to make it quite probable that the traces of such a complete destruction as that recorded in Genesis might be hidden under deposits made during these many centuries and be lost to us for ever.*

SUPPLEMENTARY NOTE.

A visit I recently paid to these elaborate potash works was a wonderful experience, when I recall the utter solitude of the same shore before the war. The area now occupied extends for some miles along the north shore. To the west lie four-storeyed flats and many houses belonging to the workers, a large restaurant and bathing-beaches. Several motor boats were anchored near the beach and at one point a motor launch was being built. A quick motor run eastwards brought us to the entrance, where a permit to see the works must be shown. My conductor, the engineering director, Major Campbell, led me in the car for nearly five kilometres past huts and offices and series of evaporating pans. Then, standing on the summit of a lofty building, he courteously demonstrated the great and intricate arrangement of the pans. These extend along both sides of the Jordan, along the north shore and for two miles inland. The pans have a surface area of from $7\frac{1}{2}$ to 30 acres.

* A brief account of Père Mallon's excavations is given by the Rev. J. Garrow Duncan in the *Quarterly Statement* of the Palestine Exploration Fund, April, 1932.

The Dead Sea water is pumped up inland into the highest pans and thence runs downwards through sluices from pan to pan. In the higher pans the water is a peacock green ; here the sodium chloride crystallises out. As it passes on, the carnallite pans (where crystals of chlorides of potassium, magnesium and some sodium crystallise out), the water assumes a dull, muddy colour. From here, this water is pumped through flexible pipes floating in the pans to special " separators," where the solid salts are left and the brine returned. The complicated processes whereby the salts are first treated in vacuum filters and then flushed with fresh water for the removal of the remaining sodium chloride, was fully described. The high-grade potash product is dried in vast flat tanks and is then mechanically conveyed to another building, where it is pressed into sacks ready for transport. Largely in consequence of last year's disturbances, there is an enormous quantity awaiting export. At the time of my visit the active manufacture was temporarily suspended though the evaporating pans continued to be utilised. It was also stated that at the south end of the sea the construction of the evaporating pans was very much simpler, since there is abundance of flat ground available for the purpose. The finished product from the south will, for the present, be conveyed the length of the sea by motor boats and barges. Bromine is obtained in a separate building by treating the remaining liquid with chlorine. At present, the bromine obtained amounts to from 1,000 to 1,200 tons a year, but this could be vastly increased.

DISCUSSION.

The CHAIRMAN (SIR RONALD STORRS) drew the attention of members to the gradual formation of the " fault " which formed the Dead Sea depression ; a geological fact which is contrary to the general belief that it was due to a sudden convulsion of nature. He added that the " grotesque hills and intricate valleys " had always reminded him, seen either from the heights of Zion or the road down to Jericho, of the hideous dead scarrings on a contour projection of the Mountains of the Moon. He reminded members of the notice that had been put up in Sir Herbert Samuel's time informing motorists at what point on the Dead Sea road they were passing below sea level ; many airmen in the Allenby campaign

were able to boast with justice that they had flown their machines below the level of the sea.

Sir Ronald Storrs said: Of the wild boars mentioned very few were left; most having been hunted down by our gallant allies, the Australians. Sir Ronald had only seen two during his nine years.

He hoped someone present might inform them how many times saltier the Dead Sea was than the English Channel. The only test he had unintentionally applied was of getting a few drops into his eye while bathing, an experience no more to be forgotten than the filthy bitterness of its taste. Its buoyancy was sometimes a source of embarrassment to bathers.

A notable experience had been the ascent of Masada with Bishop Charles Gore, who although over seventy had easily outstripped the rest of the party, not one of whom was yet forty.

Asphaltitis: the classical name was reproduced by Milton in "Paradise Regained" as the "asphaltic pool."

Concluding, Sir Ronald observed that there were few more splendidly romantic views in the world than the glimpse from the Russian Tower of the Ascension, of the Dead Sea, set like a deep glowing turquoise against the amethystine scarf of the Mountains of Moab and of Edom.

Mr. R. DUNCAN said the paper was a mine of very interesting information regarding the Dead Sea to-day, for which we were greatly indebted to the learned author. Towards its close the paper was more conjectural in character, and necessarily invited debate. Views differed, and would still differ, as to the actual site of the Cities of the Plain. One clue to a true solution of the problem may lie in trying to determine where Abraham and Lot were when they separated. From this point, wherever it was, the narrative tells us that Lot journeyed east.

It is probable that ready access to water for the animals was what their respective herdsmen were quarrelling about, as we find that assurance of a good water supply was the magnet drawing Lot and his company in their eastward trek. Strong probability exists, then, that it was in the Beersheba neighbourhood that the dispute between the herdsmen had come to a head. In later periods Abraham him-

self, and subsequently Isaac, were involved in conflicts with the Philistines concerning wells in this locality. Apparently it was quite a good grazing district, but not too plentiful in water. A nomadic community with great flocks and herds, coming out of Egypt to Palestine, would almost certainly make a long sojourn here; and here, as afterwards, contention about the water was only too likely to develop. It is suggested, then, that this was the region where Abraham and Lot found it desirable for peace' sake to part company. Moving eastwards from here would bring Lot towards the southern end of the Dead Sea.

At the same time it is recognised that a superficial reading of the narrative might indicate that Abraham and Lot were together much farther north, viz., in the Bethel neighbourhood, at the time of their separation. It was, however, as a penitent seeking re-communion with God after backsliding in Egypt that Abraham went to Bethel, and there is no mention of Lot's having accompanied him. Nor would there be much point in imposing so long and toilsome a journey on their concourse generally, especially if there were no intention of remaining at Bethel. The next time we hear of Abraham he is, in fact, back south again, near Hebron.

It is recognised also that Lot's choosing of "the plain of Jordan" seems to point to a conclusion that this decision was come to in the Bethel neighbourhood, where there would be opportunity of looking down over the Jordan valley. Let us remember, however, that river names are apt to be repeated. In England there are three Ouses and four Stours. Why, then, should there not be more than one Jordan in Palestine? Other instances of duplication of names in that country can be adduced. There were two Carmels, for example. It is accordingly suggested that there was a second river or stream called Jordan which watered the plain towards the southern end of the Dead Sea.

Jebel Usdum, which we may translate as the mountain of Sodom, stood up from this plain. Its base is rock salt and the marl overhead is largely impregnated with sulphur. Asphalt was characteristic also of the neighbourhood. It was what would now be known as a region rich in oil-bearing strata. Some ten years ago the American archæologist, Professor Kyle, after a study of the locality, reached the conclusion that the Cities had been destroyed through the medium

of a subterranean explosion rupturing the strata, and carrying skywards vast quantities of burning sulphur, salt and asphalt, which descended again as a fiery rain, blasting the neighbourhood for thousands of years afterwards. Modern illustrations of the terrifically destructive effects of any sudden release of forces pent up beneath the earth's crust are afforded by what happened at Krakatoa in the Java Sea some fifty years ago, and, in lesser degree, by the recent explosion of natural gas at Houston, Texas, bringing death to hundreds of children through the shattering to pieces in a few minutes of the large building in which they were at school.

It was Professor Kyle's opinion that the Cities of the Plain lay in front of Jebel Usdum, their site being now covered by a southward extension of the Dead Sea owing to its waters having risen. In ancient times before the extension had taken place, the ruins of the Cities were well known, and mention is made of them by Strabo, Tacitus and Josephus.

Professor A. SAARISALO said : I am pleased to see here a notable person, whom I often saw in Jerusalem at the meetings of the Palestine Oriental Society, namely, the Chairman.

In trying to locate the lost Cities of the Plain Dr. Masterman gives preference to the theories of the Jesuit, Father Mallon. The latter has put forward the suggestion that the lost Cities ought to be identified with the mounds of Teleilat Ghassal, situated north of the Dead Sea. In this he has not the support of modern authorities on Palestinian Archaeology (Vincent, Albright, Fisher, Garstang).

Dr. Masterman, speaking of the southern part of the Dead Sea, states : "The remains here have been explored and are not pre-Roman. Dr. Albright, searching the whole region south-east and south of the Dead Sea, did not find any remains which go back to the time of Abraham." The last sentence is correct if we substitute "cities" for "remains." In fact, some ten years ago, Dr. Albright found a Canaanite high place on a mound called Bab ed-Dra, situated in the south-east corner of the Dead Sea. This site has never been a city because it contains no layers of debris, as is invariably the case where there has been regular occupation. It is a natural mound, the surface of which is strewn with potsherds dating back to the Early Bronze Age, *i.e.*, until and in the time of Abraham,

but not later. When we remember that the religious festivals lasted frequently a whole week, we can easily understand how the surface of the high place, used as a camping ground, became strewn with potsherds and other household implements. Dr. Albright found, too, many tombs of the Early Bronze Age. We can also appreciate the fact that since, according to ancient custom, the people who used the mound as their high place must have dwelt at a lower altitude (the Moabite cities were situated far away, as well as much higher up on the plateau, and also came into existence later), we must accordingly look for the lost Cities, whose inhabitants used this high place, at a point below the present surface of the Dead Sea, for the waters of the Dead Sea have now almost reached the mound. In view of the well-known fact that the surface of the Dead Sea has been rising during the historic periods, and that the southern basin is rather shallow, we can infer that this basin was dry in the time of Abraham. The ancient tradition of the "Mountain of Sodom," Gebel Usdum, points to this basin. The lost Cities are four in number, so that they each could have had a separate stream. In fact, there are still at the present day four perennial streams leading down to this southern basin from the south.

May I still add another fact? The expedition of Chedorlaomer (Gen. xiv) against Sodom and Gomorrah followed a commercial route east of Jordan in the direction of the south. On his way he conquered three places which have been identified (Asteroth, Ham, and Kirjathaim). Kirjathaim, the most southern of the three, is situated south of the northern end of the Dead Sea.

When working with Dr. Albright on his excavations at Tell Beit Mirsim, the speaker had the opportunity of comparing the Bab ed-Dra pottery with the clear Abrahamic strata of Tell Beit Mirsim.

Rev. H. T. WILLS, M.A., B.Sc., said: In his very scanty remarks on the site of the Cities of the Plain, Dr. Masterman says, "At the north-west corner of the sea we have a Wady Kunoran, which may have been an echo of Gomorrah, but this was, I can state positively from personal knowledge, never the site of any large city." I wish to call attention to a lengthy quotation in Urquhart's *New Biblical*

Guide, Vol. II (pp. 229-234). There a quotation appears from a book, entitled *Journey Round the Dead Sea, &c.* (Vol. II, pp. 42-46), where an account of a ride up the west coast is given by a M. de Saulcy. In this account Saulcy says he was riding for miles through ground strewn with ruins. To give his words, "From the head of the Ouad Goumran the extensive ruins which we have found bear the name of Kharbet Goumran . . . My own conviction is, without the slightest hesitation, that the ruins called by the Arabs Kharbet-il-Yahoud, Kharbet Fechkah, and Kharbet Goumran, which form a continuous mass, extending without interruption, over a space of more than 6,000 yards, are, in reality, the ruins of the Scriptural Gomorrah."

These findings were later confirmed by "a veteran traveller in Palestine, Fr. Lieven," and others. M. de Saulcy visited the sites on a later occasion and then said "North of the Lake there is a mount, called by the Arabs, 'Gebal Sedoum,' (Mount of Sodom) and below the mount, ruins called 'Kharbet Sedoum' (Ruins of Sodom), the Arabic exactly repeating the Hebrew name. These ruins do not lie in the route by which travellers in the Holy Land are generally conducted, but they are conspicuous enough not to be overlooked by those who pass near them, and, to the eye of an archæologist, they are of sufficient age and proper Biblical character. They consist of blocks of hewn stone . . .," etc.

AUTHOR'S REPLY.

To me it is a misfortune that I was unable to answer at the time, on the spot, some of the comments on my paper. I cannot now do more than refer to one or two points. Mr. Duncan's suggestion that there may have been two Jordans seems to me an extraordinarily hazardous theory. Professor Saaristo's theory that the "Cities of the Plain" are buried beneath the Dead Sea Southern Bay seems to be chiefly founded upon his view that it is a "well-known fact that the surface of the Dead Sea has been gradually rising age after age." I do not know when the Professor has heard such a "fact," but this view is entirely contrary to all the geological evidence, which shows that age after age the level of the Dead Sea has gradually fallen, though during the historic periods there has been no

great change, but periodical rises and falls of level of a few feet. With regard to Mr. Wills' reference to de Saulcy's claims as given in his book, I thought that these were entirely discredited half a century ago. Many years ago Professor R. A. S. Macalister and I rode over this region with these remarks in mind and were quite satisfied that de Saulcy was entirely mistaken. I have been over the ground repeatedly and am satisfied that none of the scanty Arab remains could possibly belong to any ancient city. Nor has anyone but de Saulcy ever found a Kharbet Sedoum at the north end of the Dead Sea.

810TH ORDINARY GENERAL MEETING.

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, APRIL 19TH, 1937,
AT 4.30 P.M.

SIR CHARLES MARSTON, J.P., F.S.A., IN THE CHAIR.

The Minutes of the previous Meeting were read, confirmed and signed and the HON. SECRETARY announced the election of H. H. Collette, Esq., as an Associate.

The CHAIRMAN then called on the Rev. D. E. Hart-Davies, M.A., D.D., to read his paper entitled "The Book of Jonah in the Light of Assyrian Archæology."

THE BOOK OF JONAH IN THE LIGHT OF ASSYRIAN ARCHÆOLOGY.

By THE REV. D. E. HART-DAVIES, M.A., D.D.
(Rector of St. Thomas's Church, Edinburgh.)

THE Book of Jonah has been described by an eminent novelist as "the most beautiful story ever written in so small a compass." It is a narrative which is full of dramatic incident; it contains elements of a strikingly supernatural character; and it closes with an interlocution between Jonah and Jehovah which, advanced critics admit, touches the high-water mark of the revelation of the character of God in the old Testament Scriptures.

But is it true? That is the paramount question. Is the prophecy of Jonah an allegory, or a piece of religious fiction, of value because of the moral and spiritual lessons which it conveys; or is it the veritable record of a series of events, phenomenal in their nature, which, by their actual occurrence, provided a type and foreshadowing of the still more stupendous events associated with the death and resurrection of our Lord Jesus Christ?

The allegorical interpretation of the book is to-day widespread. Many treat the narrative as a fiction, with or without a very

slight framework of history to rest upon. By many the non-historical character of the book is regarded as indisputable. A problem of considerable magnitude, however, which confronts the modern critic is to explain how it has come to pass that, for at least twenty-one centuries, the Church of God has believed implicitly in the historical character of Jonah's mission. The place of the prophecy in the canon of the Old Testament is, in itself, proof that the ancient Jewish Church believed it to be historical and Jonah himself to be its author. In the Greek Septuagint Version, made early in the third century B.C., it occupies the same position as in the Hebrew Bible. It could not have been where it is had not the Jews who lived at least three centuries before Christ believed it to be historical. That is a fact which must not be lightly disregarded. Moreover, it is strongly supported by collateral evidence.

Philo, the Jewish philosopher of Alexandria, who was born about 20 B.C., believed, as his writings testify, in the historicity of the book. Josephus describes Jonah's mission very much as it appears in our canonical scripture. Of its historical character he evidently has no doubt. Now it is surely a great assumption on the part of certain modern scholars, without any indubitable evidence to depend upon, that Philo and Josephus, together with the translators of the Septuagint, and the compilers of the canon, were all mistaken in regarding Jonah and his mission as historical. They almost certainly had access to sources of information which have long since perished. Their testimony is surely of greater weight than any modern conjecture can be.

The Christian Church, moreover, has confirmed the Jewish tradition. From its earliest days and for eighteen centuries following, it has shown a striking consensus of belief in the historicity of this O.T. narrative. Only in quite recent years has it been seriously questioned, save by the scoffer and the sceptic. The catacombs in Rome bear striking evidence of the belief of the early Christians. No Biblical subject was more popular for mural representation in those underground cemeteries of the disciples of Jesus than that of Jonah's submergence and deliverance, as a symbol of faith and hope in the resurrection. Jerome, the greatest Bible scholar of the early Church, wrote a commentary on the book; and the sermons and writings of Irenaeus, Augustine, Chrysostom, and other Fathers abound in references which show conclusively that their belief in the historicity of

Jonah was unquestioned. Calvin, Luther, and the great Bible scholars of the Reformation period never questioned it. It is only within the past half-century that Christian theologians and preachers have arisen to do so; and that, I submit, on very slender grounds. Here, surely, it is apposite to quote the weighty words of the learned Bishop Lightfoot: "It may be that the historical sense of seventeen or eighteen centuries is larger and truer than the critical insight of a section of men in our late half-century."

But for many the most powerful testimony to the historical character of the Book of Jonah is that which proceeds directly from the lips of Jesus Christ. Towards the close of His earthly ministry it is recorded that certain unbelieving Jews came, demanding from our Lord the performance of some miracle which would once for all authenticate unmistakably His claim to Messiahship. For three years he had given signal proofs that He was sent from God. But they refused to acknowledge Him. In response to their insistent demand He uttered these extremely significant words: "An evil and adulterous generation seeketh after a sign; and there shall no sign be given to it but the sign of Jonah the prophet: for as Jonah was three days and three nights in the belly of the sea-monster; so shall the Son of man be three days and three nights in the heart of the earth."* The only additional sign or portent that would be vouchsafed to them as a credential of His Divine mission would be His resurrection from the dead! In that declaration our Lord endorsed the historical character of Jonah's recorded entombment and deliverance, and pointed to the prophet's experience as a type and foreshadowing of His own death and resurrection. But a still more emphatic attestation by Jesus Christ of this Old Testament narrative follows. In reference to the persistent unbelief of the Jews, He uttered this most solemn warning: "The men of Nineveh shall stand up in the judgment with this generation, and shall condemn it! for they repented at the preaching of Jonah: and behold, a greater than Jonah is here."†

This testimony, coming from Christ Himself, is for many quite conclusive. But several ingenious reasons have been formulated in order to dispose of its unique value. It is suggested by some

* St. Matt. xii, 39-49.

† xii, 41.

that the passage in the Gospels is an interpolation. Christ, they affirm, never uttered the words; they were introduced into the Gospel narrative from some extraneous source which is utterly unknown. But the manuscript evidence is of the highest character. St. Matthew's record appears also in the third Gospel with no substantial difference; and no historian of antiquity stands on a higher platform of trustworthiness than St. Luke. Both his Gospel and the Acts of the Apostles will bear the strictest scrutiny by the modern historical critic. And the statements themselves are of such a nature that only the Divine Lord, we believe, could have uttered them. The theory of interpolation is destitute of a shred of evidence.

It is said again that our Lord was only speaking parabolically. Dr. Plummer, in his comment on the passage in St. Matthew, reasons thus: "Our Lord's mention of Jonah as preaching to the Ninevites does not require us to believe that the story of Jonah is history. . . . If our Lord had said, 'As the rich man killed the poor man's ewe lamb, so ye rob the fatherless and the widow,' would that have proved that Nathan's parable was literally true?" The obvious reply is to point to the significance of the "if." The fact is that our Lord never did make such a solemn asseveration upon such a flimsy foundation.

Another common plea is that Christ was making use of a piece of historical fiction, only as we might quote out of a scene in *Macbeth* or a chapter in *Pilgrim's Progress*. But it is difficult to believe that any modern preacher would court the ridicule of a congregation by uttering a warning based upon a purely fictitious example. Archdeacon Perowne put the case concisely and convincingly in the words: "Is it possible to understand a reference like this on the non-historic theory of the book of Jonah? The future Judge is speaking words of solemn warning to those who shall hereafter stand convicted at His bar. Intensely real He would make the scene in anticipation to them as it was real, as if then present, to Himself. And yet we are to suppose Him to say that imaginary persons who at the imaginary preaching of an imaginary prophet repented in imagination, shall rise up in that day and condemn the actual impenitence of those His actual hearers, that the fictitious characters of a parable shall be arraigned at the same bar with the living men of that generation."*

* *Cambridge Bible*: Jonah.

A far more serious objection is presented when resort is had to the *Kenosis* theory, which deprives our Lord Christ of His authority as an absolutely trustworthy Teacher. This is a branch of the subject, however, which cannot be adequately discussed within the limits of the present paper. Those interested will find a reference to it and to other objections, such as those which relate to the linguistic peculiarities of the Hebrew text, in a book entitled *Jonah : Prophet and Patriot*,* which I wrote a few years ago, and which has since been translated into Chinese and Arabic.

Let us now proceed to examine the O.T. narrative in the light of the precise historic background which modern Archæology affords. The book opens with the arresting statement: "Now the word of the Lord came unto Jonah, the son of Amittai, saying, Arise, go to Nineveh, that great city, and cry against it; for their wickedness is come up before me. But Jonah rose up to flee unto Tarshish from the presence of the Lord."

Two questions immediately arise. One has reference to the historical character of the prophet himself, and the other to the precise reason for his flight "from the presence of the Lord."

As to the former let it be emphasised that Jonah was unquestionably an historical personage. He was no more a myth than was Elijah or Elisha. Only a glimpse is given us into the nature and scope of his ministry; but it suffices to provide a foundation in actual history upon which to build our argument and interpretation. In 2 Kings xiv. 25, it is written: "Jeroboam restored the border of Israel from the entering in of Hamath unto the Sea of the Arabah, according to the word of the Lord God of Israel which he spake by the hand of His servant Jonah the son of Amittai, the prophet which was of Gath-hepher." Here is a distinct reference to the conquests of the king in intimate connection with the ministry of the prophet. The one is as historical as the other. Whatever be the date of the composition of the book, there can be little doubt as to the time of the prophet's ministry.

Jeroboam II was the greatest sovereign who, since the days of Solomon, had occupied a throne in the midst of God's ancient people. He reigned over Northern Israel for the long period of forty-one years. Religiously, he followed in the idolatrous foot-

* Published by Thynne & Co., Ltd.

steps of his namesake Jeroboam the son of Nebat, who made Israel to sin ; but from the standpoint of military achievement he was surprisingly successful. He enlarged his domains so that the kingdom became almost as extensive as was that of David.

Now this remarkable extension of territory was, it is recorded, a direct fulfilment of a prophecy uttered by Jonah, who apparently stood to Jeroboam II in a relation corresponding to that occupied by Elisha to Joash, his father. That the prophet whose ministry is thus described in 2 Kings is the same as that mentioned in the prophetic book which bears his name cannot seriously be questioned. Nowhere else in the Old Testament does the name Jonah or the name Amittai occur. Gath-hepher, situated about an hour's journey to the north of Nazareth in Zebulun, is identified with the modern village of El Meshed, where, according to a well-founded tradition, which dates from the time of Jerome, the tomb of Jonah is pointed out.

We have in this historical reference in 2 Kings a clear indication of the date of Jonah's ministry. Jeroboam II reigned from 823-782 B.C. We may then, with considerable assurance, fix the date of Jonah's ministry as near the close of the ninth and the beginning of the eighth century B.C. He was thus the direct successor of Elijah and Elisha as a prophet of Northern Israel, and the senior contemporary of Amos and Hosea.

Now with respect to the second question referred to above, my conviction is that the pivot of the problem of the true interpretation of this narrative lies in the reason for the prophet's flight to Tarshish ? The character of Jonah has been maligned. He is commonly regarded as one who was disobedient to the heavenly vision through cowardice. Many false notions are traceable to misunderstanding of the prophet's motive. It is therefore necessary to determine definitely what the motive was. And, happily, we are not left to wander in a maze of probability. The book itself gives us the clue. As so often happens in the devout study of the Bible, the key to the solution of the problem is found embedded in the Scripture itself. Let us then first decide what was *not* the motive of the prophet's flight.

(i) The flight of Jonah was not occasioned by the fear that he would be hanged, decapitated, or impaled for his temerity in pronouncing the doom of the guilty city. Such a view widely prevails. But there is not a phrase in the book to suggest that fear for his own safety ever stirred the mind of the prophet. On

the contrary, so little regard had he for his own preservation that it is recorded that he it was who suggested to the heathen sailors that his presence on the ship was the occasion of the tempest, and that if he were cast overboard, the storm would cease.

(ii) The flight of the prophet was not due to the prompting of a spirit of religious exclusiveness. It is frequently argued that Jonah, like the Jewish opponents of St. Paul, was jealous lest the privileges which belonged to Israel as the children of Abraham, should be extended to the Gentiles. No material evidence for such a presumption can be found within the book itself. Jonah's attitude to the heathen sailors is governed by a spirit of compassion. While he recognises the gulf that separates him from them as idol-worshippers, he realises that they are innocent ; that he himself is the guilty one ; and he is unwilling that they should perish because of his sin. There is no ground for the suggestion that Jonah refused to go to Nineveh because he was a religious monopolist. For it is manifest that he was not commissioned to proclaim a gospel ; he was not sent to be a light to illumine the heathen darkness ; he was sent only to be a messenger of judgment.

(iii) It has further been suggested that the reason of Jonah's disobedience was personal jealousy. The Rev. H. C. Lanchester, *e.g.*, following Ewald, says : "Jonah is represented as a selfish man, jealous for his own reputation. . . . His preaching had created such an impression, that from entirely selfish motives he dreads the reaction."* These statements imply that Jonah had won esteem in the court of Jeroboam II as the seer who had predicted the extension of the borders of the kingdom ; but that when the command reached him to go to Nineveh and pronounce its doom he foresaw that the threatened judgment would not take place, and therefore his fame as a prophet would suffer. Jonah is thus likened to a modern preacher who courts popularity at the cost of fidelity ! Some stronger motive, surely, was at work in Jonah's heart.

The precise reason for Jonah's signal act of disobedience is, I believe, indicated within the narrative itself. It needs only that we visualise the historic background in order to appreciate it fully. Jonah's refusal sprang from a two-fold dread. As a

* *Cambridge Bible : Jonah (New Series).*

patriot, he was full of fear of the ruthless ferocity of the Assyrians, as the world-power destined to destroy Israel. As a prophet, he was acquainted with the ways of Jehovah. Therefore he was fearful of the tenderness in the heart of God, who, he reasoned, might spare Nineveh should the Ninevites repent after hearing the proclamation of their doom. And, for Israel's sake, Jonah resolves that Nineveh shall have no chance of repentance.

For some years prior to the appearance of Jonah, as described in the fourteenth chapter of 2 Kings, Assyria had been the dominant world-power. Nineveh, the capital, and the metropolis of the world, is described in the book as "a great and wicked city". The wickedness of Nineveh was of long continuance; and its evil report universal. Nahum, the prophet of Judah, writing close upon the time of Nineveh's destruction, says, "Where is the den of the lions, where the lion and the lioness walked, the lion's whelp, and none made then afraid? The lion did tear in pieces enough for his whelps, and strangled for his lioness, and filled his caves with prey and his dens with ravin." Beast-like ferocity characterised Assyria's treatment of subject nations and peoples.

This description by the Hebrew prophet is confirmed and illustrated by the vivid representations of the monuments. The Assyrians were the Huns of ancient days. Their ruthlessness in victory they themselves gloried in. Assyrian monarchs, instead of concealing it, took pains to exhibit their inhuman treatment of vanquished foes, in order that their own and future generations might be impressed. A bas-relief in the British Museum represents Tiglath Pileser III standing proudly with one foot on the neck of a prostrate foe as he receives the submission of the enemy. Another bas-relief represent an Assyrian monarch standing erect, with spear in hand, with which he puts out the eyes of captives kneeling in pairs before him.

"The barbarities," says Professor Sayce, "which followed the capture of a town would be almost incredible, were they not a subject of boast in the inscriptions which record them. Assurnatsirpal's cruelties were especially revolting. Pyramids of human heads marked the path of the conqueror; boys and girls were burnt alive or reserved for a worse fate; men were impaled, flayed alive, blinded, or deprived of their hands and feet, of their ears and noses, while the women and children were carried into slavery, the captured city plundered and reduced to ashes, and

the trees in its neighbourhood cut down. During the second Assyrian Empire warfare was a little more humane, but the most horrible tortures were still exercised upon the vanquished. How deeply seated was the thirst for blood and vengeance on an enemy is exemplified in a bas-relief which represents Assurbani-pal and his queen feasting in their garden while the head of the conquered Elamite king hangs from a tree above.*

Layard, in his *Nineveh and Babylon*, describing the sculptures panelling the walls of a great palace hall which he unearthed at Kouyunjik, writes : " On one side of the stream was the king in his chariot, surrounded by his bodyguard and followed by his led horses. . . . Assyrian warriors were bringing human heads to the registrars, to show the numbers of the slain. The spoil, consisting of furniture, arms, and vessels of elegant form, was being registered by the scribes, to be divided amongst the victorious troops. . . . Sennacherib in his gorgeous war chariot, and surrounded by his guards, received the captives, the heads of the slain, and the spoil. . . . The captives, bearing skins probably containing water and flour to nourish them during a long and distressing march, were fettered in pairs and urged onwards by their guards. Mothers were represented holding the water-skins for their young ones to quench their thirst, whilst in some instances fathers had placed their weary children on their shoulders, for they were marching during the heat of a Mesopotamian summer, as the sculptor had shown by introducing large clusters of dates on the palms. Thus were driven the inhabitants of Samaria through the desert to Halah and Habor, by the river of Gozan and the cities of the Medes, and we may see in these bas-reliefs a picture of the hardships and sufferings to which the captive people of Israel were exposed when their cities fell into the hands of the Assyrian king, and their inhabitants were sent to colonise the distant provinces of his empire.†

Now it was to a nation with such an appalling character that the son of Amittai was commissioned to convey the message of doom. Of the bloodthirstiness and ruthlessness of the Ninevites he could not be ignorant ; for his home was in a border town. Very probably he had been already a witness of Assyrian barbarity in several small raids across the frontier. And he can

* *Assyria : Its Princes, Priests and People*, p. 127.

† Pp. 239-241.

read the signs of the times. If one may venture a modern parallel, it would not be inexact to say that what Belgium was to Germany at the beginning of the twentieth century, that Israel was to Assyria in the eighth century B.C. Hosea, a contemporary prophet, had prophesied that Israel would eat unclean things in Assyria. Jonah therefore knows that Northern Israel is in peril of devastation because of its apostasy; he is not unaware of the instrument that is to accomplish it; he foresees that the Assyrian wolf is destined to come down upon the fold to devour the sheep. And he realises that the time of accomplishment is near.

It was in that dark and fateful hour that the word of the Lord came to Jonah saying: "Arise, go to Nineveh that great city and cry against it and say, 'Yet forty days and Nineveh shall be overthrown' for their wickedness is come up before me." The prophet, at the first, must have rejoiced greatly at the news that Nineveh was doomed. For if Nineveh were destroyed Israel might be saved. But as Jonah meditated upon the tremendous event, the occurrence of which had been Divinely predicted, and the part assigned to him as the herald of Assyrian overthrow, it began to dawn upon him that there was a possibility, yea a probability, that the message of warning might prove to be a message of mercy; that, should Nineveh repent, Jehovah might repent and Nineveh be spared! What, then, must he do? Shall he go to Nineveh and tell its inhabitants that within forty days their city is to be destroyed? He dare not. He is afraid of the Divine compassion. For Israel's sake he will not give the Ninevites the message of warning, fearing the loving-kindness of the Lord. "Was not this my saying," he expostulates, after Nineveh had been spared, "when I was yet in my country. Therefore I hasted to flee unto Tarshish; for I knew that Thou art a gracious God and full of compassion, slow to anger and plenteous in mercy and repentest Thee of the evil."*

Whether this key fits the lock I must leave you to examine for yourselves by a careful reading of the entire Old Testament narrative. Time does not permit of my doing so here and now. Those interested will find the story detailed in the light of what I have submitted in the volume, *Jonah: Prophet and Patriot*, to which reference has already been made.

When we pass to consider the miraculous or supernatural element in the story we shall, I think, realise again how the historic background of modern archæology illuminates, demonstrating the consistency of the entire narrative, and the remarkable harmony which is discernible, not only within the book itself but also between it and the New Testament references; providing an illuminating example of that blending of the Old and the New in the Biblical revelation which is the sure credential of the Divine inspiration of the Holy Scripture.

If its historical character be conceded there are three great miracles in the book which demand consideration. They are the preservation of Jonah, the conversion of Nineveh and the revelation of God. One is in the realm of the physical, the second in the realm of the moral, and the third in the realm of the spiritual. It will be my endeavour to show that these three miracles are closely related and interdependent.

With regard to the first, the Scripture nowhere states that it was a whale which swallowed Jonah; but, even if the Scripture had so stated, there are whales with a throat capacity so immense that they are capable of swallowing not one only, but half a dozen men. In the O.T. record the Hebrew words mean literally "a great fish"; in the N.T. reference to the event the Greek word employed may be accurately translated, as in the margin of the Revised Version, a "sea-monster."

There is no difficulty surely in accepting the possibility of some mighty monster of the deep swallowing a man whole. The miraculous feature lies rather in the preservation of the prophet and his ejection alive after "three days and three nights"—a phrase, let me digress to say, which does not of necessity mean a period of seventy-two hours.* Some thoughtful people believe that Jonah actually died and was raised to life again,—a perfect type of Our Lord's death and resurrection. But it is needless to introduce into the region of the argument what can only be speculative. All we have to determine here is whether the recorded event is such as we can, without straining faith or loyalty to truth, accept as historical, or, on the other hand, must reject as absolutely incredible. Common sense alone suggests that if a man can invent a mechanical submarine capable of preserving fifty men alive, surely it is not difficult to believe that

* Vide *Jonah: Prophet and Patriot*, pp. 122-5.

the Almighty could, if He chose, adapt an animal submarine to be capable of holding one.

How such a preservation was effected I am not inclined to hazard a guess. Let us be content to regard it as miraculous, and so, for the present, inexplicable. But it may help some to remember that there is a modern miracle inviting explanation, which far exceeds in mystery the one we are now considering, and which affects not a single Hebrew but an entire race. The preservation of the Jews is a phenomenon far more miraculous than the preservation of Jonah. Without a land, without a king, without a temple, without a sacrifice, and scattered throughout the earth, God's chosen people have been preserved, and their distinct nationality maintained, for well-nigh two thousand years, contrary to all the laws which govern the rise and fall of nations. This is a miracle which is manifest before our eyes.

The second greater miracle of the book is that of the conversion of Nineveh through the preaching of Jonah. This phenomenon far transcends the first in wonderment. But there is an intimate relationship between the two. Without the first miracle the second could not have been accomplished. One prepared the way for the other. How widespread the repentance of the Ninevites was, is revealed by the description: "And the people of Nineveh believed God; and they proclaimed a fast, and put on sackcloth, from the greatest of them even to the least of them."* The conversion of Nineveh began among the masses of the people; but did not end there. For it is recorded: "And the tidings reached the king of Nineveh, and he arose from his throne, and laid his robe from him, and covered him with sackcloth, and sat in ashes. And he made proclamation and published through Nineveh by the decree of the king and his nobles, saying, Let neither man nor beast, herd nor flock, taste anything: let them not feed, nor drink water: but let them be covered with sackcloth both man and beast, and let them cry mightily unto God: yea, let them turn everyone from his evil way, and from the violence that is in their hands. Who knoweth whether God will not turn and repent, and turn away from his fierce anger, that we perish not?"†

Now this immense religious upheaval was brought about, be it remembered, by the preaching of a single foreign missionary.

* iii, 5.

† iii, 6-9.

In that fact is a stupendous phenomenon which far exceeds the miracle of the preservation of the prophet. How can it be accounted for? What unique gift did Jonah possess for the accomplishment of such a stupendous reformation? It is this part of the narrative which most arrests my attention. It has been suggested that the political condition of Assyria at the time was such as to create a feeling of fearful apprehension among its citizens. The political situation alone, however, while it may have predisposed the Ninevites to hearken to the prophet's message, could never have accounted for so powerful an effect upon their hearts and consciences as to produce an instantaneous religious transformation almost without parallel.

Is any other explanation forthcoming? Yes, and it is one which completely satisfies. Our Divine Lord Himself has solved the problem. By the use of one word He has illumined and harmonised, in a manner quite unsuspected by most, the Old Testament record and the New. When the impenitent and unbelieving Jews demanded from Him some signal manifestation of power, which should authenticate His Messianic claim, saying, "Master we would see a sign from thee," Jesus replied: "An evil and adulterous generation seeketh after a sign; and there shall no sign be given to it but the sign of Jonah the prophet."*

Now what is a sign? A sign is an occurrence which, because it manifests the presence and operation of supernatural power, arrests the attention and disposes men to believe. A sign may therefore be defined as the sure credential of a Divine commission. In Athens Paul preached "Jesus and the resurrection"; emphasising the rising from the tomb as the Divine attestation of the Saviourhood of Christ, and therefore a sign which should dispose men to believe. Now what was the idea which our Lord meant to convey when He said, "No sign shall be given to it but the sign of Jonah the prophet?" Godet's comment suggests the answer: "It was as one who had miraculously escaped from death that Jonah presented himself before the Ninevites, summoning them to anticipate the danger which threatened them."†

The news of Jonah's unique experience may have preceded his arrival in Nineveh. His appearance, moreover, must have borne unmistakable marks of his entombment. It is very

* St. Matt. xii, 38-9.

† *Commentary on St. Luke*, xi, 30.

probable that when Jonah appeared in the streets of Nineveh, his face and hair and hands were unnaturally bleached, with the whiteness of a man escaped from the tomb. A weird figure suggesting Death itself stalked through the city proclaiming aloud in no uncertain tone : " Thus saith Jehovah the Lord God of Hosts, who hath made the earth, the sea, and the dry land, within forty days Nineveh, because of its wickedness, is doomed to be destroyed ! "

Like the mystic writing on the wall of the banquetting chamber in Babylon which brought Belshazzar to his knees, it was not merely the threat of the impending judgment, but the fact that the threat was accompanied by an unmistakable sign that the messenger had indeed been sent from God, which brought the Ninevites to repentance ; so that throughout the proud capital, all, from the king on his throne to the beasts in the field, joined in the national humiliation. The miracle of Jonah's preservation prepared the way, and provides the explanation, of Nineveh's conversion.

A further reason has been suggested and one which I, personally, would like to have discussed. Here is the question : How far did the religion of the Assyrians predispose them to hearken to a prophet who came to them after such an experience in the mighty deep ? Or, to put it more simply : Did the citizens of Nineveh worship a divinity that could be characterised as a fish-god ?

Professor Sayce, in his book *Assyria : Its Princes, Priests, and People*,* tells us that the religion of the Assyrians was derived principally from Babylonia. " Polytheism was rampant ; but there were three deities who held the position of pre-eminence. They were Anu, ' the sky ; ' Mul-ge, ' the earth ; ' and Ea, ' the deep.' " Concerning the last named, Prof. Sayce writes : " As god of the great deep, he was often figured as a man with the tail of a fish, and in this form was known to the Greeks under the name of Oannes or ' Ea the fish.' Sometimes the skin of a fish was suspended behind his back."

There are good reasons, moreover, for the belief that in Dagon of the Philistines we have the counterpart of the divinity worshipped by the Babylonians and Assyrians. For " Dag," the first syllable of Dagon, is the word which appears in the O.T. text of the Book of Jonah, as the Hebrew word for fish. So

* pp. 55-9.

widespread was the worship of this fish-god divinity that many suppose that the episcopal mitre of to-day, which is becoming increasingly fashionable in Anglican ecclesiastical circles, is to be traced through the papal mitre to this pagan source.

Describing the excavations at Kouyunjik of one of the palace chambers, "which appear to have contained the decrees of the Assyrian kings and the archives of the empire," Layard writes: "On the north side were two doorways leading into separate apartments. Each entrance was formed by two colossal bas-reliefs of the fish-god. These figures combine the human shape with that of the fish. The head of the fish forms a kind of mitre for the head of the man, whilst its scaly back and fan-like tail fall behind, leaving the human limbs and feet exposed. They wear a fringed tunic, and bear the two sacred emblems, the basket and the cone. The god Dagon of the Philistines and of the inhabitants of the Phœnician coast appears to have been worshipped under nearly the same form. . . . His worship appears to have extended over Syria, as well as Mesopotamia and Chaldaea."*

That the worship of this divinity was widespread is further evidenced by Layard's discovery at Nimroud of a temple within which "at right angles to the entrance, were sculptured fish-gods, somewhat differing in form from those at Kouyunjik. The fish's head formed part of the three-horned cap usually worn by the winged figures. The tail only reached a little below the waist of the man, who was dressed in a tunic and long-furred robe."† A specimen of this figure is now in the British Museum.

Assuming, then, that in Nineveh a divinity like Dagon the fish-god was widely worshipped, we might find in that fact an additional reason for the craven fear engendered in the hearts of Nineveh's populace on hearing their doom pronounced by a Hebrew prophet, who had so marvellously emerged from the dominion of a deity whom they revered as the god of the mighty deep.

The third and the supreme miracle in the book is the phenomenon of its Divine inspiration. The character of God which is exhibited, especially in the final portion, reaches the very summit of the divine revelation. Cornill, a modern critic, pays his tribute to its exalted nature in words which I gladly quote:

* *Nineveh and Babylon*, p. 168.

† *Ibid.*, pp. 177-8.

"One of the deepest and grandest things ever written. I should like to exclaim to anyone who approaches it: Put thy shoes from off thy feet for the place whereon thou standest is holy ground." Dr. Peake, likewise, is compelled to recognise its sublimity, and says: "That out of the stony heart of Judaism such a book should come is nothing less than a marvel of divine grace."

Here we have a miracle of inspiration. The revelation of the character of God in the Book of Jonah corresponds precisely to the portrayal of the Eternal Father in the parable of the Prodigal Son. The characteristic feature of the revelation in Jonah is the all-embracing compassion and love of God; an anticipation of the wideness of His mercy, to be proclaimed in the holy Gospel to every creature.

Two questions remain. First, who lit the torch of divine illumination in the soul of the author of the Book of Jonah? There is but one satisfying answer. It was God the Holy Spirit. And the second question is this: Who was the chosen vessel of this sublime revelation? The most reasonable supposition surely is, what all tradition testifies, that the pearl of divine revelation, which is enshrined in this Old Testament book, was conveyed through the medium of the prophet whose name it bears. On the contrary, says the modern critic, the pure substance of divine truth, which the book undoubtedly contains, was compounded in the soul of some unknown author, living in an unknown territory, at an unknown date, who adopted the name of Jonah for an unknown reason, and wrote the story as a piece of historical fiction for a problematic purpose. Let them who can accept such a theory. The critical problem is extremely complicated. The traditional belief, strengthened by the testimony of Christ, is immeasurably more reasonable. Let every one be persuaded in his own mind—not by prejudice or predisposition, but by the evidence carefully considered.

DISCUSSION.

The CHAIRMAN (Sir CHARLES MARSTON) expressed his appreciation of the valuable contribution which the Rev. Dr. Hart-Davies had made to the Institute concerning the book of Jonah. He pointed out that Farrer Fenton's version of the book of Jonah represented the Great Fish which swallowed Jonah to be the name of a ship.

But, he went on to say, since the Great War a fish with a mouth as big as a hut, capable of holding several people, had been on exhibition as a side-show in various parts of the world.

In the last fifty years, there had been several reports in the Press of men alleged to have been swallowed by fish monsters and vomited up again. It would be interesting to ascertain whether any of them can be verified.

When the name of Tarshish occurred in the Bible he always wondered whether it was a port on the coast of Asia Minor or on the coast of Spain.

Rev. ARTHUR W. PAYNE thanked most heartily the writer of the paper for his very valuable and interesting message. Since hearing a sermon as a schoolboy on the Book of Jonah, by C. H. Spurgeon, his then Pastor, he had never had a qualm concerning its absolute historicity. Dr. Adolph Saphir, that gifted and gracious Hebrew Christian, once asserted "Jesus and the Holy Scripture are both Jewish and Universal." The result is that this story, while having its interpretation for Israel their deliverance from the oppression of the Gentile World Empire of that day, of which Nineveh was the capital, may typify the promise of similar blessing, where there is similar repentance, even in our own much-loved and favoured Empire.

Lt.-Colonel F. A. MOLONY said: I have met with many who deny the historicity of the book of Jonah, and who say, "Seeing that we all agree that the teaching is sound and wholesome, what does it matter whether the book is history or allegory?" That may be a teacher's view, but nobody who has been in any public service would endorse it. Army officers *study* their Field Service Regulations because they say, "This is issued by Authority, and I am bound to act upon it." But when they read similar books on tactics they say, "So that is what this author thinks, but I shall keep an open mind about it." If the book of Jonah is history, it is part of the evidence for the most important truth imaginable, namely, that Almighty God seeks to bring men to repentance, and will pardon those who truly repent. But if the book is not historical, then it is only the opinion of some singularly broadminded Jew that God ought to pardon even Gentiles

if they truly repent. And the wonder that the book was received is even greater than the wonder that it was written. For the strong prejudice against God caring for the Gentiles persisted until Christ's day. For when Jesus reminded the people of Nazareth that God had on at least two occasions shown mercy to Gentiles, they were so angry that they sought to kill Him.

But if the book is history then what happened is clear. The Jews said "God has acted, and though we do not like what He has done, yet we dare not suppress the record."

MR. SIDNEY COLLETT said: I am sure we always enjoy listening to Dr. Hart-Davies. He has such a robust faith in the inspiration of the Bible!

I think there is a great deal in his suggestion, that the conversion of the whole populace of Nineveh, at the preaching of Jonah, was due in large measure to their worship of the Fish-god. A remarkable modern parallel of this is found in the Fall of Jerusalem in 1917. When the Mohammedan garrison of Jerusalem heard that General "Allenby" was coming, they immediately connected the name "Allenby" with their name for God—"Allah"; and, in that fatalistic spirit for which they are well known, they said, "It is no use fighting against Allah!" Accordingly, some of the garrison came out of the city, carrying a white flag, and handed the keys of the gates to the first batch of British soldiers they met, without firing a shot!

MR. GEORGE BREWER said: I feel that we are greatly indebted to Dr. Hart-Davies for his very interesting and illuminating paper.

After paying tribute to the beautiful and supernatural character of the book of Jonah, he puts the all-important question: Is it true? I think we shall all agree that he has very clearly and convincingly answered this by proving the authenticity of the facts recorded. It is characteristic of modernist critics to treat everything supernatural as merely an allegory; but as such, as Dr. Hart-Davies has shown, this book would at once lose its actual value. The fact that Jonah's experience provided a type of the death and resurrection of our Lord, as stated by our Lord Himself in His most solemn warning to the unrepentant Jews, is sufficient to stamp the events recorded as reliable history.

Dr. NORMAN S. DENHAM said: We are grateful to the Author for the convincing vindication of the integrity of the Book of Jonah and of its writer. I regret, therefore, to sound one dissonant note. May I first affirm that of which most must be aware, that not only great fish, but species of whales feed on submarine monsters such as the giant squid, which they absorb in huge masses. There is the generally accepted story of James Bartley of the whaler *Southern Star*, being for awhile entombed in a whale, and later emerging alive. It is the habit of the sperm whale, states Frank Bullen, in his *Cruise of the Cachalot*, when near death, to eject the contents of its stomach.

Dr. Hart-Davies stresses rightly the consistency and harmony of the entire Bible narrative. This, in spite of the author's apparent dissent in one instance in Jonah i, 17, is nevertheless illustrated in a remarkable way. It has been stated authoritatively that "when the number of 'nights' is stated as well as the number of 'days,' then the expression ceases to be an idiom, and becomes a literal statement of fact." The complete period, about 72 hours, is referred to both in 1 Sam. xxx, 12 and Est. iv, 16.

I would connect with this what has been clearly demonstrated, for instance, by Dr. Stewart, in May, 1934, when he read here a paper on "The Dates of Our Lord's Life and Ministry," that our Lord suffered on Wednesday, 14th Nisan. I would supplement this by affirming that our Lord rose from the dead at sunset of Saturday, the 17th Nisan. This is seen by careful attention to the original of Matthew xxviii, 1. Our Lord was buried as the Sabbath—the Paschal, not weekly, Sabbath—drew on. Thus three days and three nights elapsed between sunset of Wednesday, and the sunset of Saturday, during which our Lord was, as He said, "in the heart of the earth."

AUTHOR'S REPLY.

The time allotted for discussion is far spent, and it is impossible for me, therefore, to reply to the various questions raised as fully as might be desired. I must confess a measure of disappointment. I had hoped that in the discussion some helpful information would have been forthcoming in regard to the connection suggested between the fish-god worshipped by the Assyrians and the widespread religious upheaval in Nineveh which the story of Jonah's experience created.

In reply to Sir Charles Marston, I am content to regard Tarshish as the name of a port on the coast of Spain. It is evident that the prophet wished to journey as far west as possible, determined as he was to get far away from Nineveh in the east. The stories which one hears from time to time as to the swallowing of men by certain sea monsters, and vomited up again, do not impress me. One which has been referred to is, I believe, fictitious. The swallowing of Jonah by a great fish was not very remarkable. What was remarkable and miraculous was his preservation during a period of about three days. That cannot be paralleled by any modern event. It was obviously a miraculous occurrence, as was the Resurrection of Christ from the dead.

As to the precise length of the period referred to as "three days and three nights," I cannot agree with Dr. Denham that we are bound to regard it as literally a period of seventy-two hours. My reasons are fully stated in my book *Jonah, Prophet and Patriot*. The reference in Esther iv, 16, when carefully read in the context, appears to support my interpretation.

Finally, I would like to say how much I appreciate the remarks of Lieut.-Col. Molony. He has added a very powerful argument for the historicity of the O.T. narrative. It was comparatively new to me ; and I am glad to be able to make a note of it for future use.

811TH ORDINARY GENERAL MEETING.

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, MAY 3RD, 1937,
AT 5 P.M.

THE REV. W. J. DOWNES, M.A., B.D., IN THE CHAIR.

The Minutes of the previous Meeting were read, confirmed and signed, and the HON. SECRETARY announced the election of the Rev. W. E. Dalling, M.A., as an Associate.

In the absence of the author, the paper was read by the Rev. Principal H. S. Curr, M.A., B.D., which was entitled "The Gospel of St. John *in Situ*" (being the Dr. A. T. Schofield Memorial Paper, 1937).

THE FOURTH GOSPEL "IN SITU."

By the REV. D. M. M'INTYRE, D.D.

(Being the Dr. A. T. Schofield Memorial Paper.)

THE first course of lectures delivered by Neander, the celebrated Church historian, was on the Fourth Gospel.

Nearly forty years later, when he was on his deathbed, he announced as the next subject for study, "The Gospel of St. John considered in its true historical position." This line of examination opens to us the surest way by which we may convince ourselves of the authenticity and verity of this Gospel.

Let us remind ourselves of the actual situation in which this Gospel is thought to have had its origin.

The earliest tradition asserted that the Fourth Gospel was written by John, the disciple of the Lord, in Ephesus, towards the close of the first Christian century. It is said that during his long life of witness-bearing he was accustomed to narrate many

incidents belonging to the Saviour's ministry and to recount a number of His sayings. As years passed, the leaders of the Church in Asia urged him to commit to the written page those things which he had often communicated to them in speech. He hesitated, but finally consented, they on their part promising to assist him.

This tradition may not be accurate in every particular, but it is, no doubt, substantially correct. It is vouched for by Papias (c. A.D. 130), the Muratori Fragment (c. 170), Irenæus (c. 180), Clement of Alexandria (c. 200); and is confirmed by Eusebius the historian, the most learned theologian of his age and the possessor of a great library (*fl.* 325).

Let us now test the accuracy of this tradition by examining the Gospel in its historical relations.

Naturally we begin with the direct witness of the Gospel itself.

The lofty language of the prologue leads on to a personal testimony: "We beheld His glory" (i, 14). That this is not spoken of the Church at large, but of the writer himself and of his brethren of the apostolic company, is evidenced by the tender recollection of that hour when the unnamed disciple of chapter one first looked upon his Lord (verses 35-40). This narrative presents every evidence of autobiographical verisimilitude.

In the nineteenth chapter we have a strongly-worded attestation to the piercing of the Redeemer's side and the issuing therefrom of blood mingled with water: "And he that hath seen hath borne witness, and his witness is true; and he knoweth that he saith true, that ye also may believe." Some good scholars, recognising the emphasis laid on the pronoun—*ἐκεῖνος*—refer the last clause to Christ Himself, as if we should read it thus: "My Lord knows that I am speaking truth."* But it is more likely that the Evangelist is speaking of himself in the third person according to a familiar literary usage.† This is a case where the underlying Aramaic shines through. In his latest volume, Dr. C. C. Torrey writes: "This is perhaps the most important single verse in the Fourth Gospel, for here

* *E.g.*, Zahn, Sanday, Abbott, Murray.

† Dr. B. W. Bacon exclaims against such a suggestion: "Whoever heard of a writer employing such ambiguities to make the simple statement, 'I myself saw this'?" Professor Macgregor says curtly that this view is "surely impossible." It is certainly not according to Anglo-Saxon idiom. But St. John was an Eastern, and thought in Aramaic.

the real author of the work speaks momentarily and modestly in his own person." For confirmation of this statement he refers to his earlier work, *The Four Gospels*: "It seems to me quite certain that in the mysterious *ἐκεῖνος* of this verse we are to see the personal testimony of the author of the Gospel. It is quite idiomatic, and there is no other way of explaining it. When, either through modesty or for some other reason, there is a wish to avoid the use of 'I,' the circumlocution *hābū gabrā* 'that man,' 'that one,' 'a certain person,' is used in Jewish Aramaic not infrequently . . . Dalman, *Gramm.*² p. 108, mentions this as a feature of 'the Galilean popular speech,' and in his *Worte Jesu*, pp. 204 f., he gives a rather long list of illustrative passages . . . Similarly, in Arabic the pronoun *hādha*, 'this' (with no noun appended), is used occasionally as a modest substitute for the first person singular . . . It is plain that the Aramaic phrase in this passage could only have been rendered by *ἐκεῖνος*." (Pp. 329 f.)

The Witness is himself the Evangelist, he is also the Beloved Disciple.*

As he is about to bring his recollections to a close, the writer, almost for the first time, puts himself forward in order that he may indicate the aim which from the beginning he had set before him: "Many other signs therefore did Jesus in the presence of His disciples which are not written in this book. But these are written, that ye may believe that Jesus is the Christ, the Son of God, and that believing ye may have life in His name." (xx, 30, 31.)

At the very end of the Gospel we have the certification, written possibly by the elders in Ephesus, that he who wrote the Gospel was the disciple whom Jesus loved: "This is the disciple which beareth witness of these things, and wrote these things; and we know that his witness is true" (xxi, 24). Those who presented this testimony would have first-hand knowledge of the matters narrated; they were able, therefore, to guarantee the historical accuracy of the whole. And though they may have given some

* One has not space to discuss the "partitionist" theories. But it is not unfair to say that the literary considerations on which these rest do not encourage conviction in a matter which is primarily of historical interest, and which exacts a very sincere desire for truth on the part of the sacred writer. For the rest, even Wellhausen admits that the Fourth Gospel can be regarded historically as "essentially a unity."

assistance to St. John in arranging his memoirs (*see* Muratori Fragment), *the full responsibility of authorship was borne by the disciple "who wrote these things."*

The question as to the identity of the beloved disciple with John the Apostle must be considered. This disciple was present at the last Passover of our Lord (John xiii, 23), therefore he was one of the twelve, presumably one of the favoured three. The dying Saviour committed His Mother to the care of this disciple: Salome was, it appears, sister of the Virgin Mary (John xix, 25, Mark xv, 40, Matt. xxvii, 56). We find him next in company with Simon Peter on the morning of the resurrection (John xx, 2), and later by the shore of the Lake (John xxi, 7). In the last instance we are shut up to the conclusion that the beloved disciple is either one of the sons of Zebedee or one of the two unnamed disciples. He could not have been James, for this chapter brings John before us as already aged (verses 22, 23). It is unlikely that he was one of the others; neither of these will fit into all the circumstances. The phrase which we find in xx, 2—"the other disciple, whom Jesus loved"—brings two other scenes into line with those that we have mentioned: the first meeting of John with the Master, and the entrance of Simon with him into the palace of the high priest (i, 40, xviii, 15). If we cannot offer a mathematical demonstration, we have at least a moral certainty that this disciple was John the son of Zebedee.

We must now glance at the indirect evidence which Gospel affords in confirmation of the tradition.

It is obvious that the author was a Jew whose native speech was Aramaic. From Salmasius (d. 1653) to Professor Burney in our own day the belief that the Fourth Gospel was originally written in Aramaic has frequently reappeared. It is doubtful if this opinion can be substantiated, but it is evident that the writer was more familiar with Aramaic than with Greek, though he had a fair knowledge of the latter tongue. A line of argument which has been elaborated with fullness and force by Drs. Westcott, Lightfoot, Sanday, Salmon, and others is as follows: The writer was a Jew, a Jew of Palestine, whose knowledge of the topography of the Holy Land was intimate and went back to the days of Christ. He speaks of the scenes of our Lord's ministry with a particularity which betrays a personal acquaintance with the incidents which he narrates. The exactness of his portrayal

indicates that he was one of those who companied with Jesus. And, one finally decides, that he was the Apostle John.*

The merely literary objections which have been urged against these conclusions are not at all formidable.

It has been objected, for instance, that the style of the writer is reproduced in all the speeches contained in this Gospel, especially in those attributed to our Lord. In so far as this is the case it may quite naturally be accounted for. St. John had told the story of Jesus many times before he committed it to writing. He told it first and most often in Aramaic, and it was with the recollection of those numerous recitals fresh upon his spirit that he wrote, translating from Aramaic into Greek. The translation would smooth out differences, and if the statement of the Muratori Fragment, that "it was revealed to Andrew, one of the Apostles, that John should relate all things in his own name, *aided by the revision of all*," contains a core of truth this would further help to explain the similarity of the several speeches. It might also be shown, by a comparison of the sayings of Jesus recorded in the Synoptic Gospels with the narration of St. John, that the disciple had, by unconscious imitation, entered into the manner of thought and speech which characterised his beloved Lord.

The difficulty of remembering long passages of some verbal statement after the lapse of years has been urged against the historicity, and therefore against the Johannine authorship of this Gospel. But most of the narratives in the Fourth Gospel recount scenes of debate—question and answer, statement and reply—and it is much easier to recollect the course of an argument than to recall a sustained address. Even the sacramental meditations (chapters xiii–xvi) are thrown into what Vinet calls "a divine confusion" by the reaction of the disciples to our Lord's great sayings, and His response to their unspoken questionings. The intercessory prayer perhaps stands alone. But, apart from the promise of Christ that the Comforter would strengthen recollection (xiv, 26), in such an hour of high excitement as this the words of the prayer would fall on the ears of an attuned

* It is not necessary to retrace this line of proof: it has fulfilled its end. "Supernatural Religion" is dead, and the arguments of F. C. Baur have passed into the *limbus criticorum*. There are, however, signs in some recent writings of an inclination to return to a date not far removed from that of Baur. Old foes are apt to reappear with new faces. But for the present the concern of faith is not so much with the date of the Fourth Gospel, nor even with its apostolic authority, as with its historical verity.

listener with an unforgettable force, so that they would be written on the heart as in letters of fire. In addition to this, we must remind ourselves of what has already been indicated, as tradition informs us and as the pages of the New Testament evidence, St. John constantly preached the things concerning Jesus which had fallen under his own observation, so that, from the day of Pentecost onwards, those reminiscences had been wearing channels in his mind. Words and phrases would be exactly recalled.

The date of this Gospel, as given in the tradition (c., A.D. 95), is generally received by modern scholars. Differing opinions, as of Vacher Burch that it was given in substance to the Church soon after the ascension of the Lord, of Professor Burney that it was published about the year 78, or of Paul Schmiedel that it may be dated from about A.D. 140, have won a very partial acceptance. Professor Torrey, who demands an early date, says, but without sufficient regard to conflicting circumstances, that "the stage of 'evangelization' which this Gospel represents (e.g., in iv, 35-38) is the earliest, the purely Jewish stage." It would be more correct to say that the Gospel narrative is photographic in its accuracy, but that fact does not determine its date. The weight of evidence confirms the traditional view—that this Gospel first appeared towards the close of the first century.

As we read the Gospel we are increasingly impressed with the conviction that the writer, although he lives in devout recollection with his Lord in Palestine in the third decade of the century, is nevertheless conversant with modes of thought which were current in Asia Minor at the time when presumably the Gospel was written.

The prologue, which is framed around the Greek term *Logos*, declares the pre-existence of the Son and unfolds his relation to the world of men. But, as Dr. Rendel Harris and others have shown, the Evangelist has before his mind the Wisdom of God, as it is portrayed in the Old Testament and in the Sapiential Writings of the later Jews, with perhaps a recollection of the Memra of the Targums. The use of the term, however, is significant. From the fifth century B.C. the philosophers of Greece spoke much of the *Logos*, and the word had passed into currency in Ionia as well as in Alexandria. When uttered it would convey a definite concept to the man of the streets and market-places of Ephesus. But it is important to observe, and this is an evidence

of the historical worth of the Gospel, that the terminology of the Greek schools is not found in the Johannine narrative.

At the same time, that perversion of the teaching of Jesus which characterized even the incipient stages of Gnosticism, is continually before the mind of St. John. Both Caius and Jerome tell us that the author of the Gospel was a contemporary of Cerinthus, who taught in Ionia towards the close of the apostolic period. Tradition affirms that Cerinthus and St. John came into contact, if not into collision, in Ephesus. "To the false speculations," says Ebrard, "which denied now the divinity, now the humanity of Christ, he opposed His utterances about His eternal relation with the Father, and the revelation of the Father through Him. To the mere intellectual striving after knowledge without holiness, he opposes the mystical life of the believer's union with Christ." He adds that no sharper antithesis to Cerinthian speculations could be conceived than is found in the words of chapter xx, 31: "These are written, that ye may believe that Jesus is the Christ, the Son of God; and that believing ye may have life in His name."

One scarcely needs to prove that the First Epistle of St. John is by the author of the Gospel. The opening words seem to assert this, and the literary evidence is conclusive. The Epistle was probably sent out with the Gospel, to show the significance of the history, and to clear its implications: "That which was from the beginning, that which we have heard, that which we have seen with our eyes, that which we beheld, and our hands handled, concerning the word of life (and the life was manifested, and we have seen, and bear witness, and declare unto you the life, the eternal life, which was with the Father, and was manifested unto us); that which we have seen and heard declare we unto you also, that ye may have fellowship with us" (1 John i, 1-3). In this Epistle we have reference also to the pierced side, to the water and the blood, "sin's double cure" (v. 6). The emphatic statement: "This is He that came by water and blood, even Jesus Christ; not with the water only, but with the water and with the blood" is a mortal thrust at the doctrine of Cerinthus, that the æon Christ descended on Jesus at His baptism, and forsook Him when He entered the darkness of the cross. Also the docetism of the Gnostics is rebuked by the profound utterance of 1 John iv, 2, 3: "Every spirit which confesseth that Jesus Christ is come in the flesh is of God: and

every spirit which confesseth not Jesus (or annulleth Jesus) is not of God : and this is the spirit of the antichrist."

The connection between the Fourth Gospel and the Apocalypse is very intimate. Whatever opinion one may hold as to the authorship of the Book of Revelation, it is certain that it originated in Ionia in the second half of the first Christian century, and is therefore an important witness to the authenticity of the Gospel according to St. John. Bishop Westcott affirms that "the Apocalypse is doctrinally the uniting link between the Synoptists and the Fourth Gospel. It offers the characteristic thoughts of the Fourth Gospel in that form of development which belongs to the earliest apostolic age."* The Apocalypse paints in pictures—sometimes in hues of earthquake and eclipse, sometimes in radiancy of glory dazzling beyond expression—the great truths which are set forth in the Gospel in words as profound as they are simple, words which constantly remind us of the intercourse of the Master with the disciple whom He loved.

The inter-relation of the Fourth Gospel with the Synoptics provides a complicated but convincing evidence of the historical value of the former. The delicate threads of connection between the three-fold Gospel and the memoranda of St. John may be traced on every page. Bishop Westcott enumerates nearly a hundred parallels and coincidences between the Three and the One.†

The testimony of Eusebius is as follows : "John, they say, having all the time preached, but not using his pen, in the end set himself to write. The occasion was this : when the three earlier Gospels were handed to him he, they say, accepted them and testified to their truth, although they were so far defective that the earlier stages of the Ministry were absent from their accounts."‡ St. John was undoubtedly familiar with the Synoptics ; he assumes a general knowledge of them on the part of his readers. He omits that which has been sufficiently narrated ; he fits his supplementary matter into the general chronological scheme which they appear to follow ; at times he seems to regard, from a different point of view, the events which both he and they relate.

The Synoptists draw the greater part of their material from the tradition current in the Church of the first days and from the

* *The Gospel of Saint John*, p. lxxxiv.

† *Ibid.*, p. lxxxii, f.

‡ *H.E.*, iii, 24.

"teaching of the Apostles" which soon crystallized into form. They accordingly convey the instruction given to new converts and inquirers in the beginning of the Christian age. Until the passion of Jesus darkens upon the page the first three Gospels confine themselves almost exclusively to the Galilean ministry of the Lord; whereas the Fourth Gospel was addressed mainly to mature believers of the second generation, and is concerned chiefly with the deep sayings of Jesus relative to His Person and the work of the Holy Spirit.* These sayings were for the most part spoken in Jerusalem, the home of Jewish orthodoxy. When the Fourth Gospel came to be written, controversies on difficult points of doctrine had begun to stir in the Church. St. John, therefore, in re-telling the story of Jesus, selects those incidents which lead him most directly to the fulfilment of his expressed purpose: "These are written that ye may believe that Jesus is the Christ, and that believing ye may have life in His name." Remembering this, we may understand why so large a part of the Gospel should be occupied with the disputing of the Jews regarding the claims of the Messiah to be the Son of God.

While there are striking divergencies between the earlier Gospels and the later one, there are remarkable agreements in language and in description. It would be impossible in the time at one's disposal to dwell at any length on these. All that one can do is to make a few general remarks by way of comparison.

The account of the Baptist's ministry is given by the Evangelist in diverse but quite congruent forms. St. John emphasises two points. In the first place he stresses the witness of John to Jesus, to His Person and work. In the second place he affirms, as against some who had been disciples of Jesus but had not become followers of the Lord, that John was merely the herald of the Christ. Both these points are confirmed by the Synoptists.

St. John selects a number of representative incidents of the Saviour's ministry, and passes by great breadths of His mighty working. The Synoptists indicate in similar terms that the

* It is undoubtedly true that St. John saw the Saviour to be exceedingly glorious through participation in His grace and power during sixty years of loving discipleship. But we ought not to allow ourselves on that account to suppose that the history has been "idealised." We might as well insist that the adoring utterances of the First Epistle of Peter cancel the factual truth of the Second Gospel.

reminiscences which they record convey only a partial view of the saving activity of Jesus. *

From time to time St. John makes it clear that he is cognizant of the course of the Galilean ministry, and the Synoptists indicate their awareness of the visits of Jesus to Jerusalem. The beginning of His self-manifestation in the capital gives us the key to understand the unquestioning obedience of John and Andrew, Simon and James, when at the lakeside He called them to discipleship. Already by the waters of baptism they had entered into the obedience of Christ. And the lament of the Saviour over the city which had so many times heard His voice, only to refuse His invitation, is recorded in the Synoptical Gospels: "How often would I have gathered thy children together . . . and ye would not" (Matt. xxiii, 37, Luke xiii, 34).

All the Evangelists regard the cross as central. The life of love leads up to it, the resurrection is its consequence. And it is in the passion story that the interlacing filaments are most frequently discernible. If St. John omits the agony in the garden, he records the soul-distress of Jesus (xii, 27; xiii, 21). If he does not describe the Feast of Remembrance, he tells of the Memorial Supper (xiii, 2 f.), and imparts in anticipation (vi, 48-56) the significance which the Lord conferred upon it in the words of institution. If he calls upon us to behold the essential glory of the Sole-begotten, he tells us also of the Saviour's weariness, His tears, His temptations, His torturing thirst (iv, 6, xi, 35, xiv, 30, xix, 28). On the other hand, both Matthew and Luke report words which enshrine the full doctrine of our Lord's Deity as it is set forth in the Gospel according to St. John (e.g., Matt. xi, 27, Luke x, 22). In each of the four Gospels we are confronted with the same Christ.

Ignatius of Antioch, "the successor of St. Paul," as he ventured to style himself, wrote a number of Epistles to the Churches on his way to a Roman martyrdom (c. 110). These Epistles are saturated with Johannine thought and phraseology. Dr. Burney extracts from them 36 reminiscences of the teaching of the Fourth Gospel, and adds to these 11 allusions to the First Epistle of John. He writes: "Ignatius's knowledge of the

* Compare, for example: Matthew iv, 23, 24; viii, 16; ix, 35; xi, 5, 20 f.; xiv, 2, 14, 35; xv, 30; xix, 2; xxi, 14; with John ii, 23; iv, 45; vi, 2; vii, 3, 31; x, 32; xi, 47; xii, 37; xx, 30; xxi, 25.

Fourth Gospel . . . seems to be proved demonstration." * Similarly, Canon Streeter, speaking of the relation of Ignatius to the Fourth Gospel, declares that "his whole outlook and his theology have been profoundly influenced by the study of this Gospel." One illustration will suffice: "I desire the bread of God, the heavenly bread, the bread of life, which is flesh of Jesus Christ, the Son of God, who became afterwards of the seed of David and Abraham. And I desire the drink of God, the blood of Him who is undying love and eternal life." This recalls John vi, 33, 48, 54.

Papias, who wrote soon after the close of the first century † and is described by Irenæus as "a hearer of John, a companion of Polycarp and a man of the olden time," made use, according to Eusebius, of "testimonies from the First Epistle of John." §

Polycarp, who died in extreme old age (A.D. 155), wrote many Epistles to the Churches. Of these only one remains, a letter to the Philippians, dated by Bishop Lightfoot about the year A.D. 110. This Epistle has several allusions to the First Epistle of John, as, for example: "Every one that confesseth not that Jesus Christ has come in the flesh, is Antichrist; and whosoever confesseth not the testimony of the cross is of the devil."

As it is practically certain that the Fourth Gospel and the First Epistle of John are by the same writer, and were published together, the witness of Papias and of Polycarp indirectly confirms the former.

The early Gnostics, Basileides, Valentinus, Heracleon, took

* *The Aramaic Origin of the Fourth Gospel*, pp. 153-171.

† *The Four Gospels*, p. 455.

‡ Dr. Sanday places it even earlier. He says: "The natural date for the extracts in this chapter seems to me to be *circa* 100." *The Authorship of the Fourth Gospel*, p. 251.

§ From a much-discussed passage in Papias' *Expositions*, Eusebius concludes that at the close of the first century there were two Johns, both of note in the Church, who lived and died in Ephesus. This is quite likely: the name John was as common among the Jews as it is with us. But, so far as we are able to judge, there was only one person in Ephesus of such high authority as is evidenced by the Johannine writings—and that one was the son of Zebedee, disciple and apostle.

It would be a mistake to think that when Polycrates says that St. John wore the "petalon"—the priestly mitre with the golden seal, "Holiness to Jehovah"—he was referring to the Aaronic priesthood in any sense other than figurative. He probably meant that John, "the head of the Church in Asia," was in the Christian Church what the High Priest in Israel had been. There may also have been an allusion to the holy character of the disciple of love—he wore the Lamb's name upon his brow.

notice of the Fourth Gospel because of what they deemed its attitude to "the true gnosis," an attitude outwardly similar to their own, but in many important respects different. Basileides flourished about 130, Valentinus after 140; the writings of Heracleon date from the first half of the second century. Basileides, in the few pages of his writings which remain, refers to the Fourth Gospel; of Valentinus Westcott says: "The whole system of Valentinus is unintelligible to me unless the Gospel of St. John is presupposed." Heracleon wrote a commentary on this Gospel.

In a collection of papyri purchased from a dealer in 1934 were some fragments of a life of Christ. These were apparently portions of an early Gospel, designed on much the same lines as the canonical Gospels. This copy was made "most likely before the end of the first century . . . (it) can hardly be later than the early years of the second century." This Gospel, so far as the fragment which has been preserved indicates, has almost no affinity with the Synoptics, but its relation to the Fourth Gospel is "obvious and palpable." The question rises: Does the author of this Gospel quote from St. John? or do the Fourth Gospel and this unknown writing both rest on an earlier stratum of tradition? Perhaps the true answer would be that the Unknown Gospel derives largely from the teaching of St. John, which must have been widely diffused throughout the Church.

An unpublished fragment of a manuscript of the Fourth Gospel, purchased in Egypt in 1920 and examined in 1935 by C. H. Roberts,* is thought to be "the earliest known fragment of any part of the New Testament and probably the earliest witness to the existence of the Gospel according to St. John." We find it circulating in Middle Egypt in the first half of the second century. The verses preserved in this fragment are John xviii, 31-33, 37-38.

Justin Martyr (*fl.* 146) has a distinct reference to our Lord's discourse with Nicodemus: "For Christ said, Except ye be born again ye shall not enter into the kingdom of heaven. But that it is impossible for those who have been once born to enter into their mother's womb is clear to all."

Tatian, a disciple of Justin, composed a Harmony of the Four Gospels by which we see that those under his hand were practi-

* Both of these Fragments were published by the Trustees of the British Museum, 1935

cally identical with our own. This Harmony opens with the sentence, "In the beginning was the Word"; and, as we have indicated, it contains the entire Gospel according to St. John.

Irenæus (*fl.* 180) quotes frequently from the Fourth Gospel, and tells us definitely that "John the disciple of the Lord, who also leaned on His breast, put forth his Gospel while he abode in Ephesus in Asia."

We need go no farther. In the last quarter of the second century of our era the Gospel according to John was received as authentic by the Church in every province of the Empire. The evidence of its distribution from 170 to 200 is summed up by Dr. Sanday in these terms: "Irenæus and the Letter of the Churches of Vienne and Lyons in Gaul, Heracleon in Italy, Tertullian at Carthage, Polycrates at Ephesus, Theophilus at Antioch, Tatian at Rome and in Syria, Clement at Alexandria. The strategical positions are occupied, one might say, all over the Empire. In the great majority of cases there is not a hint of dissent." *

Eusebius confirms this pronouncement, and assures us that both the Fourth Gospel and the First Epistle of John were accepted without controversy, not only by his own contemporaries, but also by the ancients.† From that date until quite recent times no serious doubt was cast upon the authenticity of this Gospel which Ernesti has described as "the heart of Christ." Theodor Keim, alluding to the criticism of the Fourth Gospel, declares that "our age has cancelled the judgment of centuries." He implies that it has been reserved for the last century or so to cast doubt on the authenticity of this important work. Perhaps we may judge that Dr. Keim's assertion is too unqualified with regard to the early centuries. On account of the use which Gnostics and Montanists made of the Fourth Gospel, a slight degree of hesitation in granting to it full canonical status was observed, especially in the West. But those who demurred were few, and their objections were quickly overruled.‡

* *Criticism of the Fourth Gospel*, p. 238.

† *H.E.*, iii, 24.

‡ The Johannine tradition, as we have seen, is consistent and strong; and there is little to set against it. Two doubtful notices which found themselves on Papias, but come respectively from the seventh and the ninth century, affirm the martyrdom of John the Apostle. This is, so far, confirmed by the Syriac martyrology of date 411, and the statement of Aphrahat under the date 343, that John "trode in the footsteps of Christ." But these are too recent to carry conviction, nor are they consistent with themselves.

But, says Keim, "our age has cancelled the judgment of centuries." This statement is not so convincing now as it may have been some years ago. It is true that for a generation or two many New Testament scholars have been unwilling to endorse the historical verity of the Fourth Gospel. But there is some evidence that the tide has begun to turn.

Let me give only one illustration, the latest so far as I am aware. Dr. J. O. F. Murray, formerly Master of Selwyn College, Cambridge, now Dean of Ely Cathedral, who has spent forty years in the study and exposition of the Gospel according to St. John, has only some months ago brought out a valuable commentary upon it.* "In this book," it is said, "the author has tried to gather up the fruits of a long life, a great part of which has been spent in trying to share with others the lessons that St. John has to teach one who believes with ever-deepening conviction that the Gospel does indeed come to us direct from him." There are others who share with Dr. Murray this "ever-deepening conviction."

DISCUSSION.

The CHAIRMAN (Rev. W. J. DOWNES, M.A., B.D.) said: The paper we are about to hear has been selected as the Dr. A. T. Schofield Memorial Lecture. Dr. Schofield was in the tradition of Luke, the beloved physician. A well-known medical practitioner, he was also a Christian writer, and active otherwise in Christian work and testimony. Associated, too, with this Institute as one of its Vice-Presidents, and interested always in its proceedings, it is altogether fitting that he should still be remembered in connection with its work. His interests were many sided, but centred most in the Holy Scriptures. The present paper is on a subject that would certainly have appealed to him, and it is also by an author whom he would have regarded as a kindred spirit.

I would first of all express my great appreciation of the paper and thank Dr. M'Intyre for his able work. Such questions as the paper has raised in my mind are of a very minor character, such as, *e.g.*, the statement at the top of page 253, that John xxi, 22 and 23 depict John as already aged. I do not see how the suggestion of age is

* *Jesus According to John*, 1936.

got from the verses in question ; and on the other hand, the probability that Jesus, James and John were cousins according to the flesh strongly suggests that they were much of the same age.

Mention is made on page 254 of the difficulty of remembering long passages of some verbal statement after the lapse of years. Supplementary to what Dr. M'Intyre says, it should be remembered that with the people concerned the power of memory would normally be very much greater than with people of our own Western day and generation. The faculty of memory had much greater cultivation among them because they depended more upon it. There was no Press ; no cheap books ; and very restricted access to any written word. Memory was largely called on to supply accurately in daily conversation and discussion the sacred words of the Law and the Prophets, and the Traditions of the Elders ; also the details of business transactions. When, therefore, the Holy Spirit, the Remembrancer, came to them in accordance with the promise, He came to enhance a faculty already trained to a high degree of usefulness. Moreover, those earliest disciples were not poverty-stricken, illiterate people. When they were described as " ignorant and unlearned men " the words meant not what we to-day would take them to mean, but simply that they had not had a university education and were not trained expositors of the sacred Scriptures and the Traditions. They normally possessed a fair degree of culture ; they could read and write. It was most likely, therefore, that they would make notes of some sort so that the striking sayings and deeds of Jesus might be constantly freshened in their memories.

The last paragraph and the footnote on page 258 draw attention to the difference of emphasis between the first three and the fourth Gospels. The difference, of course, strikes the reader at once, and the reasons for it given in the paper are perfectly true. I believe that yet another reason is to be found in the fact that the Synoptists did not need to emphasise the Deity of Jesus because they were so close to Him in time when their Gospels were written. His impression upon them, especially in the closing weeks of His earthly life, had been so vivid, so overwhelming, that they all spontaneously and heartily confessed Him as " my Lord and my God." When they wrote the Deity of their beloved Lord was so clear, so obvious, so unquestionable in their minds that they felt no great concern to

emphasise it. But after the lapse of years, when John came to write his supplementary Gospel, the situation had changed. The idea of Incarnation as applied to Jesus had become increasingly difficult because the new generation of converts had not the same overwhelming awareness of the Deity of the Lord. So John writes with that special emphasis. And it is significant that the critics who would destroy the authenticity of the Fourth Gospel are chiefly those for whom the idea of an Incarnation, of the Deity of Christ, is unacceptable.

I again express my deep appreciation of Dr. M'Intyre's paper, and ask you to accord to him, as I am sure you are most keen to do, a very cordial vote of thanks.

Dr. J. BARCROFT ANDERSON said : I realise that my knowledge of the English language is limited : but so far as that knowledge goes I understand Dr. M'Intyre in his paper to represent John's Gospel to have been of human origin. That John used his own judgment as to what he inserted, and as to what he did not insert, that he relied on human memory. That is a view which, I believe, that most of you do not accept. If you believe, as you do, that from Pentecost till the time of the end of Acts, the Apostles, and members of the Ecclesia of God, spoke messages from God in languages they themselves knew not and could not interpret, you can have no difficulty in believing that the Author of John's Gospel was not John, but the Holy Spirit of God. You accept the words of 2 Peter i, 21 :—"This primary thing get to know, that every prophecy of Scripture from personal release (or origin) never came into being. Because, *not* by will of man arose prophecy at any time, but by Holy Spirit being carried-along they spake from God, though men." If you carry anything along, that thing you carry has no say as to where you carry it.

Mr. SIDNEY COLLETT said : Mr. Chairman, Ladies and Gentlemen : I am sure we all thank Dr. M'Intyre for his paper and Principal Curr for reading it. There are, however, certain statements in the paper that call for comment.

On page 251 he tells of a legend which says "the Leaders of the

Church in Asia urged John to commit to the written page what he had often communicated to them in speech. He hesitated; but finally consented, *they on their part promising to assist him.*"

On page 252 he speaks of the time when John is about to bring his *recollections* to a close.

On page 254 He speaks of "the difficulty of *remembering* long passages, etc."

Now, these and other similar passages raise the whole question of the inspiration of the Bible, and, in these days of modernistic teaching, we ought to be very definite on the subject. I am not prepared to believe that in the Bible we have just what the writers happened to *remember*, even with the "assistance" of others. The Bible makes it perfectly clear that what we have in the Holy Book is not the mere "recollections" of a human mind but what holy men of God spake as they were moved ("driven" is the actual word as in Acts xxvii, 17) by the "Holy Ghost" (2 Peter i, 21). So that we have the all-embracing statement in 2 Tim. iii, 16 that:—*"All Scripture is given by inspiration of God."*

I would like to ask Dr. M'Intyre: How did Moses write the account of Creation in the first chapter of Genesis, concerning things that happened before man with a "memory" was created? and, again, how did the Evangelists record the thrice-repeated prayer of our Lord in Gethsemane, when the only three disciples who were anywhere near, were sound asleep? (Matt. xxvi, 36-45).

There is, however, one passage (Luke i, 3) which, from our authorised version, seems to imply that Luke wrote his gospel as a result of his own natural understanding of the things of which he wrote. But the words rendered "from the very first" should be "from above." That Greek word "anóthen" is never elsewhere rendered "from the very first," but always "from above," as in John viii, 23, where Christ said: "Ye are from beneath I am from above."

In that passage, accordingly, Luke tells us plainly that he got all his information from above, meaning by Divine inspiration!

Now, I do not suggest that Dr. M'Intyre intended to question the inspiration of the Bible, but I do submit that his words should have been more guarded. In the phraseology which he uses, he places too much stress upon the *human* element, and not enough on the absolute controlling influence and the full inspiration of the

Holy Spirit, whereby alone the infallibility of the Bible could be secured.

Mr. WILLIAM C. EDWARDS said: This is a most interesting paper, but I feel that we must lay far more emphasis upon the help and inspiration of the Holy Spirit; Our Lord promised this in John xiv, 26, "He—the Holy Spirit—would," said our Lord, "bring to their remembrance all things whatsoever I have said unto you." I assume that we all believe that Matthew xxviii, 16-20 is identical with 1 Cor. xv, 6. There we are told that at one time five hundred saw the Risen Lord. To these must be added an innumerable company of men and women who heard Our Lord's discourses, and saw His Miracles, while some were amongst those who were healed. With what joy, mingled with pride, would they often tell their experiences and repeat His words. The stories of these witnesses were again repeated by their hearers. After a time such narratives became quite stereotyped, or, shall we coin a word, and call them gramophoneoned? We know that many wrote out their experiences and memories of Our Lord's discourses so that there is quite a crop of so-called "logia." When reading Matthew's Gospel, I feel all the time that we have here a Levite, not a Galilean, but one who has become an Official (Publican) there, probably having property in the district. He seems especially to give us much of Our Lord's Galilean Ministry (*e.g.*, chapters v, vi and vii). The Evangelist Mark is generally conceded as giving us the story from the Apostle Peter's own lips. He shows how Christ "went about doing good" (Acts x, and 38-43). There can be no reasonable doubt that the third Evangelist was the Beloved Physician Luke, for it has the peculiar charm and style which seems to mark the writings of medical men of all ages. When we come to the Fourth Gospel, I feel that here we can see that the Holy Spirit who had controlled the writings of the three preceding Gospels now brings records, events and discourses which were not included in the narratives of the other Evangelists.

Some years ago, I discovered that it was possible to prove that Our Lord's Ministry had the cyclic number of 1,290 days. Now supposing that each day were recorded, *e.g.*, the discourses in Matthew v, vi and vii, there might have been thousands of chapters in each Gospel. Supposing that even only a small amount of Our

Lord's discourses and healings were given day by day, the book would indeed be enormous in its size. Happily, the Holy Spirit has condensed this vast Ministry down to the 89 chapters contained in the four Gospels. Should anyone ask me, "How did John get chapter iii, which gives the private interview by night with Nicodemus?" I should at once answer that this was probably retold many times by Nicodemus himself. The woman of Sychar could very well have given her own story (chapter iv) in the great revival in Samaria, when the two Apostles, Peter and John, went to that city (Acts viii, 14). But how shall we account for the sublime chapter xvii, where language is used which we must feel is far beyond all the powers of human composition? It is unfortunate that very few people seem to remember that most important post-Resurrection Ministry of Our Blessed Lord which is referred to in Acts i, 3, where we find that during the forty days in which Christ often showed Himself to his disciples, He spoke to them of "things pertaining to the Kingdom of God." It was the Emmæus journey (Luke xxiv, 44-48) all over again, not for the benefit of two disciples alone but for the eleven. To such also may belong those special revelations which Christ gave to the Apostle Paul (Gal. i, 12).

I regret very much that the Lecturer has referred so briefly to the Diatessaron of Tatian, which gives a complete answer to those who date the fourth Gospel long after the death of the Beloved Disciple. I hope that some day the original Greek writings of Tatian may be discovered. Meanwhile, there is a cheap and handy translation from the Arabic version which will show how foolish are the attacks of those who seek to discredit the authorship of the fourth Gospel by the aged Apostle John. To my thinking, such men are not inspired by the Holy Spirit but by the Spirit of the Anti-Christ.

Mr. GEORGE BREWER said: We owe a debt of gratitude to Dr. M'Intyre for his valuable paper, in which he has proved by evidence external and internal the authenticity of the fourth Gospel.

As to the external evidence, the testimony of Irenæus, the disciple of Polycarp, who was the disciple and friend of the Apostle John, while it does not stand alone, should be quite sufficient. He says, speaking of John in connection with the gospel bearing his name, "After the death of Domitian, having returned to Ephesus,

he was induced to write concerning the Divinity of Christ, co-eternal with the Father." Domitian died A.D. 96, and it was by the persecuting edicts of this emperor that John had been exiled to the Isle of Patmos.

The internal evidence, so copiously detailed by Dr. M'Intyre, is overwhelming, and should be sufficient to convince anyone who has no ulterior motive for rejecting this gospel.

The Apostle John, who is generally admitted to have been the disciple most intimate with our Lord, had for many years been ministering to the Churches of Asia Minor (the fruits of the labours of the Apostle Paul), and, by his long Christian experience, was enabled under the power of the Holy Spirit to reveal much of our Lord's life and testimony which was absent from the earlier gospels. As, in the course of more than half a century, many heresies had sprung up concerning the person and work of our Lord, the Apostle was urged to commit the substance of his ministry to writing, so that the Churches of the present and succeeding generations might possess an inspired record.

The fourth Gospel, while in perfect harmony with the three earlier gospels, takes a much wider view of our Lord's ministry.

Matthew reveals our Lord as the promised Messiah to Israel, tracing His earthly lineage to King David; Mark, as the Servant of Jehovah, commences with His public ministry; Luke, as the Son of Man records His human ancestry to Adam; while John, who commences his Gospel with the words "In the beginning was The Word," emphasises His essential Deity and Eternal Sonship, by Whom and for Whom all things were created.

John dwells on the spiritual aspect of the Kingdom of God, entrance to which can only be through the new birth; the universality of the gospel of God's grace; the oneness of the members of the Body of Christ, under the figure of One Flock and One Shepherd gathered from both within and without the Jewish fold, and the promise of their going to be with Him where He is; also the promise of the indwelling of the Holy Spirit to guide, comfort and teach them during their earthly pilgrimage.

Mr. W. E. LESLIE wrote: The chief interest of the fourth Gospel is undoubtedly devotional and theological. But it has many

interesting literary features. The stylistic resemblances to the Johannine Epistles are marked. They stand out more vividly if stated in relative form. Thus the Greek word rendered "truth," is found 1.5 times per thousand words in the Synoptics, 15.4 in John, 40 in his Epistles, as against 4.6 times per 1,000 in the rest of the New Testament. For this calculation the number of Greek words in the Synoptics is taken as approximately 44,622, in John 15,491, in his Epistles 2,465, and in the rest of the New Testament 127,342.

John's writings are marked by a literary parallelism that may be a development of "Hebrew Parallelism." A simple example is found in 1 John ii, 19 :

They went out from us
but they were not of us
for if they had been of us
they would have continued with us.

More complicated is the arrangement of the clauses in Revelation iv, 8-11. In the well-known visions of the Seals, Trumpets, and Bowls, we have the same thing extended to whole sections. In the *Bible League Quarterly* for October, 1931, it was contended that the alleged dislocation in chapter xx, so much insisted upon by Charles and Oman, is in reality part of a literary design running through the entire book.

Turning to the Gospel we find simple parallelism of phrase almost everywhere. The apparent give and take of conversation in chapter vi will be found, upon close examination, to fall into a series of progressively ordered "panels." Chapters xiv, 25 to xviii, 1 are marked by the recurring phrase "these things have I spoken" ("These things spake Jesus" in xvii, 1 and "When Jesus had spoken these words" in xviii, 1).

But, as in the Apokalypse, we meet also with a larger design. The inverse arrangement of the "signs" (whether reckoned as seven or eight) has long been known. What is the connection of these signs with the surrounding matter? The first sign is preceded by the incident of Nathanael, the last by that of Thomas. A number of parallels may be noted between them. Can similar relations be discovered in other parts of the book? Taking the arrangement of

the signs as a guide, the middle point of the book is in the beginning of chapter vi. The signs before that point have a more Hebraic outlook, while those following are more universal. In the case of Nathanael, we have the Messiah, the King of Israel; in that of Thomas, "My Lord and my God." In the first case we have the angels ascending and descending upon the Son of Man. In the second there is the blessedness of those who have not seen and yet have believed.

In the Apokalypse we have a Prologue leading to an Introduction, the boundary being difficult to define. The same remark applies to the conclusion and the Epilogue. In the Gospel we meet with the same difficulty both at the beginning and the end.

These things indicate that there is a literary structure underlying the Gospel similar to that which has been suggested for the Apokalypse. If it could be worked out, it would be decisive for the question of authorship, and would doubtless release a flood of new light from this wonderful Gospel.

AUTHOR'S REPLY.

I much regret my enforced absence from the Meeting held on May 3rd. I thank Mr. Downes and Mr. Brewer for their consideration; Mr. Curr also for his kindness in reading the paper for me.

Mr. Downes suggests that I represent St. John as already aged when Our Lord spoke of His return by the shore of the Lake. What I meant was that he was already aged when the chapter was written. I thought I had made that clear.

One or two of those who took part in the discussion seem to me to err, if they will allow me to say so, by minimising or ignoring the human aspects of the Holy Scriptures. One may draw a parallel from the controversies regarding Our Lord's Person which agitated the Early Church. The formal conclusion arrived at was that our Lord was at once Man of our manhood, and very God of very God. When, at a later time the Humanity of the Saviour was reduced in order that His Divinity might be advanced, confusion came into this all-important doctrine.

A similar confusion may arise from a defective view of inspiration. But we shall never make the Deity of Our Lord more sure by

depressing the Manhood, nor the Divinity of the Scriptures more evident by our elimination of the human factors.

Dr. J. Bancroft Anderson says plainly, "The Author of John's Gospel was not John, but the Holy Spirit of God." The Scriptural formula does not bear this out. What we do read by the grace of the Spirit is, "Men spake from God, being moved by the Holy Ghost" (R.V.). The revelation came from God, but it was ministered by men—human hands and lips, human hearts and minds were engaged in the great work of communicating the divine revelation to men.

Mr. Sidney Collett says quite rightly that "What we have in the Holy Book is not the mere 'recollections' of a human mind." But he may have noticed that I speak expressly of "the promise of Christ, that the Comforter would strengthen recollection." And this brings us back to Our Lord's own saying, "He shall teach you all things, and bring to your remembrance all that I said unto you."

Mr. Edwards complains that I do not say enough about the action of the Holy Spirit in the creation of St. John's Gospel. For more than fifty years I have consistently affirmed and reaffirmed the plenary inspiration of Scripture, and hope to continue to do so till the end. But Mr. Edwards surely does not consider that my business in writing this paper was to move altogether along the lines of history. It is true that the historical and spiritual lines of argument are concurrent, but they should not be confused.

I might draw attention to other points but I have been asked by the Secretary to be as brief as possible in my reply.

812TH ORDINARY GENERAL MEETING.

HELD IN COMMITTEE ROOM B, THE CENTRAL HALL,
WESTMINSTER, S.W.1, ON MONDAY, MAY 24TH, 1937,
AT 4.30 P.M.

R. DUNCAN, ESQ., M.B.E., I.S.O., IN THE CHAIR.

The Minutes of the previous Meeting were read, confirmed and signed, and the HON. SECRETARY announced the election of Major H. B. Clarke, R.E. (ret.), as an Associate.

The CHAIRMAN then called on Mr. W. H. Boulton to read his paper, entitled "Miracle; a Necessary Adjunct of Revelation" (being the Langhorne Orchard Prize Essay, 1936).

MIRACLE; A NECESSARY ADJUNCT OF REVELATION.

By W. H. BOULTON, ESQ.

Being the Langhorne Orchard Prize Essay, 1936.

INTRODUCTORY.

AS the foundation of the Langhorne Orchard essays directly connects them with the general ideas of the Harmony of the Holy Scriptures with Science or Philosophy, the Revelation referred to in the present essay will be taken to apply to the Book which is known as the Bible, otherwise referred to as the Holy Scriptures, and concerning which the Apostle Paul predicated inspiration in his epistle to Timothy.* Any claims to revelation that might be made for any other religious writings will be ignored.

With regard to the terms Miracle and Revelation the following are the definitions given in a dictionary of repute. "Miracle. A wonder or a wonderful thing, a marvel, specifically an event or effect in the physical world beyond, or out of, the ordinary course of things, deviating from the known laws of nature, or transcending our knowledge of those laws; an event which cannot be accounted for by any of the known forces of nature, and which is therefore, attributed to a supernatural force." "Revelation. An act of revealing or communicating Divine truth, specifically the disclosure or manifestation of Himself, or of His will, by God to man, as through some wondrous act that

* 2 Tim. iii, 15 and 16.

awes and impresses, through oracular words, signs, laws, etc., or through the inspiration of the Holy Spirit."* Both these definitions might be extended, but they are sufficient for the purpose in view, and are a fair expression of what is intended to be conveyed by the words in this essay.

It has been contended that miracles are impossible or incredible. That argument is passed over for the moment ; after all, it is merely a dictum, whereas the question of the occurrence of miracles is a matter of fact and a question of evidence. That evidence does not entirely depend upon the testimony of witnesses. As will be seen later, reason leads to the conclusion that if Revelation ever took place it was desirable that there should have been some indication by which people might be able to know that it was a Revelation and not the mere expression of thoughts which had been passing through a speaker's or a writer's mind. An ambassador must possess and present his credentials. If that is so between human governments it must be at least equally so when the speaker or writer professes to be declaring truths from God. Such a one must be prepared to produce his credentials when making known new truths or new aspects of the Divine purpose. The reason for the qualification of the statement by the word "new" will appear shortly.

AN HISTORICAL REVIEW.

It is a notable fact that in the Scriptural record of Miracles there are three principal periods in which they were of frequent occurrence. They were not confined to those times, but they happened then on a scale never reached at other periods. These three were the days associated with Moses and Joshua, Elijah and Elisha, and Jesus and His apostles. This is a fact which invites attention ; there must have been a reason for it. It will be found that the reason will help to make clear the connection that exists between Miracles and Revelation.

MOSES AND JOSHUA.

When Moses appeared in Egypt with a message to the Israelites that the God of their fathers was about to deliver them from the bondage under which they groaned, he told them something which must have seemed well-nigh incredible. For many years they had been mere slaves. They longed for deliverance, many

* *Webster's International Dictionary.*

doubtless prayed for it, but when Moses came with his message, how were they to know that he had really received it from God? How could they be sure that he was able to lead them to the land that had been promised to their fathers? The record of the Exodus is so familiar to us that we seldom stay to realise the circumstances that attended it. At the time the Egyptians were the most powerful nation in the world, and they held the Israelites as serfs. In such circumstances the claims of Moses to have received a revelation, when Aaron on his behalf "spake all the words which the Lord had spoken unto him," were scarcely likely to carry conviction to either Israelites or Egyptians. He needed some credentials to uphold his claim. When he performed the "signs" before the eyes of the leaders of Israel "the people believed." In this case, therefore, Miracles were a necessary adjunct to Revelation. The signs that followed in the plagues that, one after another, fell upon the Egyptians, and the indication of Divine powers in connection with the crossing of the Red Sea, were further signs that gave Moses an assured position among the people, and prepared them to listen when, in after times, he declared to them the things which he said the Lord had spoken to him.

When, after Moses' death, Joshua undertook the leadership of the people, he had the advantage of having been associated with Moses. Some of the prestige of the past still attached to him, yet the lengthened day, or rather night, in response to his adjuration, "Sun, stand thou still (or, be silent) upon Gibeon; And thou, Moon, in the valley of Aijalon,"* must have been accepted by the people as a further instance of Miracle which served to confirm the words he addressed to them. It must be granted that there was not much of actual Revelation in the things which he is recorded to have said.

ELIJAH AND ELISHA.

It was not until the times of Elijah and Elisha that a further series of Miracles occurred in Israel. From the time of the Conquest until then the history of the people pursued a normal course. The essential idea that bound the tribes together was the common worship of Yahweh. There were many failures, apostacies, and, more or less sincere, recoveries, but no definite challenge to the supremacy of Yahweh arose during that period. Even the calves at Bethel and Dan seem to have been regarded

* Joshua x, 12 and 13.

as the representations of Yahweh.* It was the adoption of new centres and ■ form of worship, not a new object of worship. When Omri and Ahab reigned over Israel it was altogether different. The alliance with Phœnicia introduced a rival God, and the worship of Baal brought in by Jezebel, spread like a plague through the kingdom. It was a definite crisis and there was a necessity for it to be unmistakably demonstrated that the only true God was Yahweh. That necessity accounted for the scene on Mount Carmel, when "the fire of the Lord fell and consumed the burnt offerings, and the wood, and the stones, and the dust, and licked up the water that was in the trench."† The "sign" thus given was sufficient, and the cry burst forth from the assembled multitudes, "Yahweh He is the God." It was an occasion when Miracle was required, and it inaugurated a period, especially in the life of Elisha, when Miracles were frequent.

In ■ sense Elijah and Elisha inaugurated ■ new era in Israel—the era of the prophets. They lived in the Ninth and Tenth Centuries B.C., and before the later century had expired Amos and Hosea commenced the work of the prophets whose writings have been preserved in the Bible. It may be objected that these prophets did not as a rule appeal to miracles or signs.‡ But there was a good reason for this. They were not heralds of a new message, they only emphasised and explained the principles that had been laid down by Moses, and the claims of Yahweh to be the sole object of worship, which Elijah had established by his ordeal by fire and water. The prophets made no claim to change the ordinances, they did not overrule the laws as to sacrifices and oblations. What they did was to show the futility of bringing "vain oblations"; they showed that such sacrifices, carried out with unclean hands and defiled minds, were useless. The greatest of them all, Isaiah, has expressed the message of the prophets in a nutshell. "Wash you and make you clean." "Cease to do evil, learn to do well."§ Such sayings were but the repetition in other words of the injunction through Moses, "Be ye holy, for I, the Lord your God, am holy." Hence the scarcity of Miracles during the period of the prophets.

* 1 Kings xii, 26-30. Jeroboam's son's name was Abijah-Yahweh his father.

† 1 Kings xviii.

‡ The backward motion of the shadow on the dial of King Ahaz is an illustration of an exception.

§ Isaiah i. 13-17.

JESUS OF NAZARETH.

The periods of the Exile and of the Restoration introduced no new principles of religion amongst the people, they rather drove them to a more rigid interpretation and practice of the law and ritual of the past. This tendency finally resulted in the adoption of an almost lifeless formalism until Jesus of Nazareth appeared with an entirely new Revelation of, and from, God, though it must be remembered it was based on the old, for He declared that not one jot or one tittle should pass from the Law till all things should be accomplished.

In the new conception of religion which Jesus announced he went further than any of the prophets had done. With Him religion meant not only the control of deeds and words, but even of thoughts. He added to the old Law when He said, "Ye have heard that it was said to them of old time, Thou shalt not forswear thyself, but shalt perform unto the Lord thine oaths; but I say unto you, Swear not at all."* He went still further for He said "Ye have heard that it was said, An eye for an eye, and a tooth for a tooth; but I say unto you, Resist not him that is evil; but whosoever smiteth thee on thy right cheek, turn to him the other also."† "Love your enemies, pray for them that persecute you,"‡ He made statements that cut at the very root of their religious complacency. "And I say unto you, that many shall come from the east and the west, and shall sit down with Abraham, and Isaac, and Jacob, in the kingdom of heaven; but the sons of the kingdom shall be cast forth into the outer darkness."§ He claimed to be the Son of God||; who was to lay down His life and take it again¶; and as the last stage of His mission was reached he made the explicit assertion that those to whom He spoke would "deliver Him unto the Gentiles to mock, and to scourge, and to crucify; and the third day He shall be raised up."***

His saying involved such a complete revolution in the ideas of those who heard, and accepted, Him, that He Himself recognised that in the absence of any credentials they could not

* Matthew v, 33 and 34.

† *Ibid.* v, 44.

‡ John x, 36.

*** Matthew xx, 19.

† *Ibid.* v, 38 and 39.

§ Matthew viii, 11 and 72.

¶ *Ibid.* v, 17 and 18.

be blamed if they rejected Him altogether. Thus He said, "If I had not done among them the works which none other did, they had not had sin,"* that is in rejecting Him. The same principle underlies His statements "If I do not the works of My Father, believe Me not. But if I do them, though ye believe Me not, believe the works ; that ye may know and understand that the Father is in Me, and I in the Father,"† for "the works that I do in My Father's name, these bear witness of Me."‡ One of His most definite statements was, "The witness which I have is greater than that of John ; for the works which the Father hath given Me to accomplish, the very works that I do, bear witness of Me, that the Father hath sent Me."§

Sayings such as these must bring all thoughtful readers of the gospels to the crux of the matter. Jesus' claims were so unique that there was a definite necessity for Him to give some indication of His right to make them. Those indications, or signs, were not mere wonders, they were, almost without exception, beneficent acts. The sick were healed, sight was given to the blind, lepers were cleansed, even the dead were raised. It is to be particularly noticed that these signs were not given to make men glorify the doer, but to give Divine attestation to the things that He said. They established His claim to be the Son of God and the Messiah of Israel, though He was a very different Messiah from the one they had been expecting. Looking at Jesus of Nazareth, and bearing in mind the extraordinary character of His claims, it is easy to see that in His case Miracles were a necessary adjunct to the Revelation He made.

One of those Miracles is an excellent illustration of the principle that was involved. It was the cure of the Centurion's servant. It will be recalled that when the Centurion came to Jesus to tell Him that his servant was sick, Jesus replied, "I will come and heal him." The Centurion responded that he was not worthy of so great an honour, but, he said, "only say the word and my servant shall be healed." Then he added, "For I also am a man under authority, having under myself soldiers ; and I say to this one, Go, and he goeth ; and to another, Come, and he cometh ; and to my servant, Do this, and he doeth it."|| No saying could better sum up the situation. He recognised Jesus as being in some way in a similar position

* John xv, 22.

† *Ibid.* v, 25.

† John x, 37 and 38.

§ John v, 36.

|| Matthew xiii, 9.

to himself, one under authority and having authority to do certain things because of the authority that had been given Him. The saying is remarkable as showing that a belief in the reality of the works done by Jesus must have been sufficiently widespread to have reached the ears of a Roman centurion, and that in a way that convinced him of its truth.

There is another aspect in which the Miracles of Christ may be viewed. The primary object of His preaching was the salvation of men. His death and subsequent resurrection, itself a Miracle, were the bases on which this was to be effected, and His Miracles were an indication to His contemporaries that such a salvation was possible. When, for example, He said, "Thy sins are forgiven thee," a necessary thing in the larger sense if salvation is to be possible, or, "Her sins, which are many, are forgiven her," he was saying things which could be, and were, challenged, and which, in themselves, he could not prove. But when, in the former case, he added "Whether is easier, to say, Thy sins are forgiven; or to say, Arise and walk," and then, turning to the man said, "Arise, and take up thy bed, and go unto thy house,"* the mouths of cavillers were stopped, and the Miracle was seen to be a Divine credential, authorising the words that He had spoken. In such a setting Miracles were not mere wonders, they were a part of the Revelation which Jesus had to make concerning Himself and the Father. Having regard to the character of the Revelation that was given through Him, Miracles must be recognised as a necessary means of conveying God's endorsement of the remarkable things He said. His claims were tremendous. "I am the Resurrection and the Life," "He that hath seen Me hath seen the Father." In the absence of some attestation which would show that God was with Him, such claims could only have met with universal rejection. In the circumstances it will easily be realised why His Miracles were so many and so varied, and why they happened on a scale far greater than in any previous age.

THE APOSTOLIC AGE.

After Jesus had finished His mission and had ascended to the Father, His Apostles entered upon the work which He had commissioned them to do. They went forth with a new

* Matthew ix, 2-7.

revelation. Admittedly it had its roots in the old religion of Israel, yet it was essentially new. It is necessary to consider it in two aspects, first, as it appeared to the Jews, and then as it appeared to the Gentiles.

Included in the Apostolic doctrines were two things which, on natural principles, were impossible—the Virgin birth and the bodily resurrection of Jesus. These were both miraculous events ; they are also essential elements of the Christian religion. Any form of Christianity which excludes either or both of these doctrines, is not real Christianity at all. A merely casual examination of the New Testament will show that both are included in the essentials of Apostolic doctrine.

It is, of course, possible, that some progress might have been made among the Jews by appeals to the Old Testament in support of these events. There are certain statements which exactly fit in with them. But even that would have been a recognition of Miracle, for such a prevision of events of so startling a nature would have been miracles of foreknowledge. It is very certain, however, that such a course would never have met with so phenomenal a success as attended the early preaching of the Apostles in Jerusalem, when the “ number of the names ” jumped from 120 to 3,000 and then to 5,000. Yet such a success was necessary if a real impression was to be made on the people in those early days. Something more was essential, and that something was Miracle. One aspect existed in the empty tomb in the garden to Joseph of Arimathea (its empty condition being a standing witness to the most remarkable Miracle of all), together with the “ signs and wonders that were wrought by the Apostles. Many of these were performed under circumstances which ensured the widest publicity. They were notorious, and no explanation of them, other than the true one, ever seems to have been suggested. Thus when the High Priest had Peter and John before him, his enquiry was, “ By what power, or in what name have ye done this ? ” His words were a tacit admission that a miracle had been performed. When the proceedings were over they said “ What shall we do to these men ? for that indeed a notable miracle (or sign) hath been wrought through them, is manifest to all that dwell in Jerusalem, and we cannot deny it.”*

* Acts iv, 7 and 16.

It will be observed that, as in the case of Jesus, the signs were almost all of a beneficent character, and they thus took their place in endorsing the otherwise almost incredible proclamation that One who had been publicly executed, had risen from the dead, and was now the Prince of Life, the Saviour of mankind. They constituted the one way in which God could, and did, "confirm the word by signs following." The Apostles themselves recognised this, hence their prayer, "And now, Lord, look upon their threatenings; and grant unto thy servants to speak the word with all boldness, while Thou stretchest forth Thy hand to heal; and that signs and wonders may be done through the name of Thy holy Servant Jesus."*

When we turn to the Apostolic proclamation to the Gentiles, the fact that Miracles were necessary to make their Revelation likely to be accepted by their hearers is seen in an even clearer light. Some time before the end of the first half-century of the Christian Era three men set out from Antioch for an extended tour in Gentile lands. They were Saul of Tarsus, Barnabas, and Mark. They were going into countries where the name of Jesus, and the prophecies of the Old Testament were unknown, except by the few Jews who dwelt among them, who knew something of the latter. What were the tidings they were to announce? Their message was, that Jesus of Nazareth, a Jew who had been rejected by His own people, and had been ignominiously put to death by the Roman Governor of Judea, had, contrary to all precedent, been raised from the dead, and was alive for ever more; that he had been seen by a number of people for many days, and then, again contrary to all precedents known to the Gentiles, had ascended bodily to heaven. There He was acting as a Mediator between God and men. until the time should come for Him to return to the earth to establish a new kingdom, the Kingdom of God. He was announced as "another king, one Jesus."

Could any proclamation appear more hopeless of being accepted? Yet there was more than that. This Jesus was a Saviour, who was to be for salvation unto the uttermost parts of the earth. This was something quite outside the philosophy of the age, for it applied to all, rich and poor, learned and unlearned, even slaves were invited to participate in it. Still that was not all, there was a element in their teaching that must

* *Ibid.* iv, 29 and 30.

on no account be omitted. As Paul and Barnabas returned (Mark had done so earlier), they called at the various cities where they had preached "confirming the souls of the disciples, exhorting them to continue in the faith, and that through many tribulations we must enter into the kingdom of God."* A proclamation such as has been outlined, the acceptance of which involved the prospect of "many tribulations" required something more than the words of two Jews to secure its acceptance. Yet it is recorded that at Iconium, for example, "a great multitude both of Jews and Greeks believed." At Derbe they made many disciples. There is only one explanation which will account for the success that attended their labours, and that is that they were enabled to add the evidence of miraculous deeds to their words. "They tarried . . . speaking boldly in the Lord, which bare witness unto the word of His grace, granting signs and wonders to be done by their hands."† Having regard to the nature of the things they proclaimed, and the things that were likely to come upon those who believed them, it must be recognised that something more than mere words were necessary. Miracles were essential to the success of their mission.

It may be urged against the argument of the foregoing paragraph that in modern times missionary efforts have resulted in a wide acceptance of the Christian religion among peoples who knew no more of it than did the inhabitants of Antioch, Iconium, or Derbe. There seems to be some force in this at first, yet it is easily replied to. There is an essential difference between the two cases. Modern missionaries carry a message from the most highly civilised, to the more backward, races of mankind. Their very standing adds to the strength of their message. It was not so in the case of the early Christian missionaries, for many of those to whom they addressed themselves were quite as advanced in the scale of civilisation as they were themselves, indeed, some of them were among the most highly developed peoples of the earth. Then, too, the results were quite different. Long and persistent effort now produces some response, and Christianity gradually finds acceptance among the nations of heathendom. In the case of the Apostles and their helpers they seldom stayed in any place long, they were more like itinerant preachers, going from place to place,

* Acts xiv, 22.

† Acts xiv, 3.

yet great numbers accepted their message, and joined the company of those who believed in the crucified, but risen, Christ. Looking at all the circumstances of the case, only one explanation of such a remarkable success is possible, and that is the one given by the Apostle himself, "And I, brethren, when I came unto you, came not with excellency of speech or of wisdom, proclaiming to you the mystery of God. For I determined not to know anything among you, save Jesus Christ, and Him crucified. And I was with you in weakness, and in fear, and in much trembling. And my speech and my preaching were not in persuasive words of wisdom, but *in demonstration of the Spirit and of power*, that your faith should not stand in the wisdom of men, but in the power of God."*

THE NECESSITY FOR MIRACLES.

The foregoing brief review of the place of miracles in Bible history has practically shown their necessity in certain circumstances. There can be no question that as age has succeeded age new phases of Revelation have been made known. Moses announced a Divine message. The prophets declared various "burdens of the Lord," Jesus proclaimed an entirely new doctrine. "Ye have heard . . . but I say unto you." The Apostles announced a message that was almost incredible. By what means were people to be led to believe them? In cases where the messages were the direct outcome of previous beliefs the sayings might have been commended to the hearers by appeals to reason, though even in such cases something more must often have been desired. But in many instances the messages did not apparently arise out of past beliefs, they were new aspects altogether. Granting that these messages were new Revelations, how were the hearers to know that they were so? Mere assertion proved nothing. The earnestness of the speakers was no proof that their messages were from God. It is difficult to see any other way in which their words could have been shown to be Revelations from God, other than that which was afforded by Miracles. It has been truly said that "the only possible proof of a Revelation is Miracles, and that nothing else can give sufficiently authoritative testimony."

* I Corinthians ii, 1-5.

CAN MIRACLES HAPPEN ?

Of course, if the saying that miracles cannot happen can be sustained there is an end of the matter, and there can be no proof of a Revelation. But is such a conclusion justified ? The statement is based upon the idea that natural laws are unalterable and inexorable. If God, a personal God, were ruled out of the matter, this might be a fact. Assuming the existence of God (and a claim to Revelation makes this assumption), we are bound to allow for what may be described as the free will of God. The highest form of beings of whom we have practical knowledge are ourselves, and one of the things that particularly characterises us as human beings is the possession of a free will. We can do, or refrain from doing, a certain act. If we have a definite object in view we will do things that otherwise we would not do. If we say that God cannot act similarly we reduce Him to something less in the scale than ourselves in that respect, and that is inconceivable. If Revelation is a fact, and the title of the essay assumes that it is, and the Bible is that Revelation, then it follows that God had a purpose with mankind for the fulfilment of which He has been, and is, working. On these premises it may be concluded that He may have caused things to happen quite outside the operation of what are termed natural laws, for the purpose of showing that the things which were being announced, whether by Moses or the prophets, by Jesus or His Apostles, were the things that He had commissioned them to say. The greater the importance of their announcements, the greater the likelihood of miracles.

There is just one other point that should be noticed before coming to a conclusion. It is to be noted that many of the things that are spoken of as miracles, and which are said to be contrary to natural laws, may not necessarily have been so ; in certain instances they may have been done by the operation of higher laws of which we, as yet, know nothing. The laws which govern the course of nature have been intensively studied during the last hundred years, and very much is known now which was not so much as thought of in, say, 1800. Imagine any one in that year showing his fellows a case which appeared to speak with a human voice, or to produce sounds like those of a military band. Such a thing would have been as incredible as the Miracles of the Bible, yet to-day such a thing is one of the commonplaces of life. He would be a bold man indeed who ventured to set a

limit to the possible discoveries and inventions of man, or who stated that every possible law which governs natural things has been discovered by him. Some, though by no means all, of the Miracles of Jesus were the hastening of processes which regularly take place. Others were quite outside such processes, yet to take an extreme case of Miracle, the raising of Lazarus, it would be absurd to conclude that He who could truthfully say, "I am the Resurrection and the Life" could not raise Lazarus from the dead in attestation of that claim.

MIRACLES OF KNOWLEDGE.

A passing allusion has been made to prophecies. To unerringly foretell the future is as impossible for human beings as giving sight to the blind. Yet such a thing has been done by many of those who have taken a part in the production of the Bible. The continued existence of the Jews,* though dispersed among all nations, the utter end of Nineveh,† and the complete desolation of Ancient Babylon,‡ are in exact accord with the declarations of various prophets. Such predictions were Miracles of knowledge which cannot be accounted for on any known principle of natural foresight. They may be regarded as collateral evidence that Miracles of power also were not only possible, but probable, and that they sometimes marked the ministry of those who proclaimed the fundamental principles that govern the dealings of God with men, and the salvation which he purposed for them. The fruition of that purpose is based upon the great outstanding miracle of the past, the resurrection of Jesus, who was delivered for our offences and raised again for our justification.

DISCUSSION.

The CHAIRMAN (MR. R. DUNCAN) said: Ladies and Gentlemen, Borrowing an illustration from human institutions, it may be said, with all reverence, that the King Eternal, Immortal and Invisible rules His creation constitutionally. He does not, that is to say, govern capriciously, but in accordance with good and stable laws which, in His own wisdom, He has ordained, and which operate universally.

* Jeremiah xxx, 11. Luke xxi, 24.

† Nahum ch. i.

‡ Isaiah xlii, 19-22.

Within His prerogative there are, however, reserved powers, not ordinarily coming into play, but exercised in particular circumstances according to the good counsel of His own will. To the manifestations of these reserved powers we apply the term "Miracle."

It is more than probable, for God is not the author of confusion, that Miracles, when they occur, are also subject to and pervaded by law, but our present powers of vision are too dim and limited clearly to discern its outlines.

The argument of the very helpful paper to which we have just been listening implies, and I think rightly, that the necessity of miracle as an adjunct to Revelation arises from man's slowness of heart to believe the word of the Most High, or to abide steadfast in that belief.

To accept His word implicitly, and without the backing of any apparent proof, that is what the Lord most glorious truly delights in, and when Abram showed faith of this nature we read that it was accounted to him for righteousness. But with the Lord there is compassion, too, for feebleness of faith, and, in the case of Gideon, He gave sign after sign, with the object of quickening to fullness of growth and vigour a faith that at first was but as a grain of mustard seed.

It may, indeed, justly be inferred from the Scriptures generally that the primary aim of the Miracles was to evoke or to confirm belief in God as the ruler of all, and nigh at the same time to all who call upon Him in truth.

Yet has not this gracious intent of the Heavenly Father largely proved fruitless because of the blindness of men's hearts? In the days gone by it was written of Israel that "they soon forgot His works," and of these more modern times is it not true that to boast rather of the greatness of man's works has become the prevailing tendency? And even in Christian pulpits, where there still should be a readiness to dwell on the mighty acts of the Lord, there is seldom any allusion now to His wonders of old. All the more timely, then, is such a paper as the one we have before us this afternoon.

The appeal of the miraculous ordinarily reaches the spirit of man through the avenue of his eyesight. The signs wherewith Moses was commissioned would have been devoid of convincing power to others if performed only in the dark, or before people who could not

see. This truism is briefly expressed in the popular phrase "Seeing is believing." Yet we have, on the other hand, the pregnant saying of the risen Christ, "Blessed are they that have not seen and yet have believed." Blind Bartimæus is possibly a good illustration of this latter and more profound truth. Here was one, dwelling in the dark, who could never have seen any of the miracles of Jesus, and whose knowledge of Him must have come only from popular report. Yet Bartimæus had in his own mind reached the assurance that Jesus was truly the Messiah long expected, the Son of David, while the thronging multitudes who daily saw His works could as yet only think of Him as the Prophet of Nazareth of Galilee. Yes, there is a deeper quality somehow in faith that cometh by hearing than in that resulting from sight.

Miracle as a subject of study is fascinating in all its aspects. I am particularly attracted by the miracles that reveal God's power over the animal creation. Beasts of the earth, birds of the air and fishes of the sea all have wills and dispositions of their own. Yet they are as wholly at the Lord's command as are the winds and the waves and all the other impersonal forces of nature. Consider for a little the feeding of Elijah by the ravens. The raven is essentially an independent rover, shunning usually the neighbourhood of man. Yet to birds of this indocile nature was committed the task of ministering daily to the prophet's needs. And how punctually they carried it out over an extended period, bringing him bread and flesh in the morning and bread and flesh in the evening! Did they gather this provision here and there in the ordinary course of foraging, or was there, so to speak, some depot to which they were directed, and where they found the food all ready to be carried away? Was there only one pair of ravens engaged, or did relays take up the work? Details such as these are not revealed, but they are implicit in the miracle, and we may legitimately speculate concerning them. One thing is certain. The whole episode must, to Elijah himself, have been a wonderful lesson in faith, preparing him to act forthwith on the succeeding strange command to proceed to Zarephath of Zidon, where, in the midst of the prevailing famine, a widow woman would sustain him.

Nowadays, however, belief in God's manifestation of Himself through miracle has gravely declined. In this respect the position

generally may be said to be one of ebb-tide. The witness of the Christian Church in the matter has grown faltering instead of remaining strong and clear. Those who still glory in the truth that the Christian gospel, both in its foundations and its ultimate hopes, is indissolubly bound up with the miraculous are possibly now a minority. There is good reason, therefore, to welcome Mr. Boulton's paper, which is, in effect, a defence of the Church's earlier and more universal standpoint. The paper seems to me to be marked throughout by clarity, sobriety and strength. It brings home to one's spirit with freshness of conviction the necessity that miracle should have mingled with revelation in the age-long process of God making Himself known to mankind. It gives a glimpse, too, of the Divine wisdom and prudence with which such miraculous workings have always been guided and controlled.

I have pleasure, therefore, in moving a hearty vote of thanks to Mr. Boulton.

Dr. J. BARCROFT ANDERSON said : Belief in the 19th and 20th verses of the first chapter of Romans is obviously impossible, if you believe miracle to be a necessary adjunct of revelation. I translate those verses thus : " The acquired-knowledge of the God, a revealed-thing is in men (literally ' them ') : for the God to them has revealed it. For the unseen things of Him—even His eternal power and godhead—since the formation of the world, by the made-things, being mentally understood, are clearly-seen."

Mr. SIDNEY COLLETT said : One hesitates to criticise so good a paper. But I suggest that the author's remark in the last paragraph on page 283, where he says : " Jesus proclaimed an entirely new doctrine. Ye have heard . . . but I say unto you," calls for some comment. The reason is that putting it in that way is certainly misleading, since it implies that Christ altered the Law, which He Himself says He did not. Indeed, it is not a little remarkable that almost at the beginning of His Sermon on the Mount our Lord uttered this most solemn warning on that very subject : " Think not that I am come to destroy the Law or the prophets. I am not come to destroy but to fulfil." (Matt. v, 17.) Hence it is evident that Christ foreknew that some of His words might some day be misinterpreted. Accordingly, whatever we may think, or however

we may misunderstand His words, we have His own clear declaration—which is in perfect keeping with the prophecy concerning Him : “ He will magnify (not alter) the Law, and make it honourable.” (Isa. xlii, 21.) Here we are on safe ground in dealing with the words of Him Who cannot lie.

But now let us go a little further. If we read the Sermon on the Mount carefully, we shall note that it deals with a variety of subjects, the reason being that the thousands who listened to Christ doubtless formed a very mixed multitude, and our Lord dealt with the subject accordingly. I will select three instances only. Sometimes our Lord was referring to the Law generally. In such cases He *intensified* it. Sometimes He was quoting from instructions given to magistrates for their administration of the Law. In such cases He showed *that* Law was not intended for everybody. Sometimes He was referring not to the Law of God at all, but rather to the false teaching of the Rabbis, and that He condemned.

Here are three instances. The first deals with the Law in general. “Ye have heard that it was said, Thou shalt not commit adultery : but I say unto you that whoso looketh on a woman to lust after her hath committed adultery with her already in his heart” (Matt. v, 27). Is that altering the Law ? Is it not rather *intensifying* it, by showing that it is not merely the outward act that is sinful but the inward thought of the heart from whence all evil springs. The second case is one where Christ referred to instructions given to magistrates. “Ye have heard that is hath been said : an eye for an eye, and a tooth for a tooth (Exodus xxi, 24) : but I say unto you that ye resist not evil” (Matt. v, 39). Now these were instructions given to magistrates so that, in their administration of the Law, their judgment should be strictly just. The result was that when, in this case, Christ said, “but I say unto you,” the stress should be laid not on the “I” but on the “*you*.” This means that the Law given to magistrates is not meant for everybody, as, if Christ were saying, “You are not magistrates ; hence *you* are not to take the Law into your own hands.” To put it in another way, “If a man deserves to be hanged, it must be left for the Law officers to deal with, and not for any individual to get a rope and hang the man !”

In this case, therefore, Christ was not altering the Law but was merely throwing a clearer light upon it.

The third instance is one when Christ referred to the unscriptural teaching of the Rabbis. "Ye have heard that it hath been said : Thou shall love thy neighbour, and hate thine enemy." (Matt. v, 43.) But who said that ? Certainly not Moses. Nor is it found anywhere in the Bible. It was the false teaching of the *Rabbis*. That teaching Christ condemned when He said : "but I say unto you *Love your enemies*." Our Lord's teaching here was in strict accord with the Mosaic Law which definitely enjoined love to one's enemy thus : "If thou meet thine enemy's ox or his ass going astray, thou shall surely bring it back to him again." (Ex. xxiii, 4.) Again, "Thou shalt not abhor an Edomite (Israel's enemy), Thou shalt not abhor an Egyptian (also Israel's enemy)." (Deut. xxiii, 7.)

The consequence is that in the Sermon on the Mount Christ is so far from altering the Law that He rather made its teaching more easily understood, while He condemned the false teaching of the Rabbis.

Mr. R. G. LUNDY, I.S.O., said that he took exception to the questioning by a previous speaker of the word "necessary" in the title of the essay. Miracle he felt bound to regard as an absolutely necessary adjunct of revelation. Consider, for instance, the greatest miracle of all, that miracle of miracles, which bears all other miracles of Holy Scripture, as it were, upon its shoulders. What would be our lot as believers without it ? If the Lord Jesus has not risen, then they who have fallen asleep, trusting in Him, have perished. This is the teaching of the apostle Paul in 1 Corinthians xv.

Major R. B. WITHERS, D.S.O., wrote : The title of this essay is clear, and for Christians there is only one "revelation," the Sacred Scriptures. Why, then, does the essayist give us a dictionary definition of miracle, instead of a scriptural definition from the Scriptures themselves ?

If he had begun his study at the beginning, he would have made the interesting discovery that in the A.V. "miracle" is the rendering of less than half the occurrences of two different Greek words. A satisfactory translation could therefore have been accomplished without using the word "miracle" once !

The ordinary usage of the word is too vague for an essay on this subject to be of real value unless a scriptural definition is fixed at the outset.

This lack is a fatal flaw throughout. For instance, the virgin birth and the bodily resurrection of the Lord Jesus are both regarded as miraculous events. But where does Scripture speak of them thus? The essayist rightly adds that they are "essential elements" of Christianity; but, if so, they cannot also be only "adjuncts," even if "necessary adjuncts," of revelation!

In point of fact, they are neither "powers," "signs" nor "wonders." They are not miracles in the scriptural sense. Does the essayist appreciate the fact that the miracles of Scripture are intrinsically more, not less, credible than the doctrines of Scripture?

Moreover, he apparently overlooks the fact that miracles are not necessarily divine acts.

Even when he goes outside Scripture to consider the possibility of miracles, he still fails to get down to first principles, and apparently regards miracles as breaches of natural law. This view strikes at the root of all rational belief! A divine miracle entails no breach of universal order. It is simply special action to meet special requirements.

Miracle necessarily remains a primary battle-ground between the Faith and unbelief; and it is regrettable that we have failed to achieve a more adequate treatment of so vital a theme. Some of us believe our only hope lies in a re-examination of Scripture based on full faith and unbiassed by human tradition—that real application of Scientific Method of which "modern criticism," and, unfortunately, much "orthodox" writing as well, is but a counterfeit.

AUTHOR'S REPLY.

May I first of all thank Mr. Duncan for his kindly references to my paper. I appreciate his saying that the miraculous workings of the past have been guided and controlled by Divine wisdom; it is this feature that gives them their greatest worth as an adjunct to revelation.

Major Withers asks why I gave a dictionary meaning of the word miracle and not a Scriptural one? I did so for the simple reason that the subject proposed for the essay spoke of "miracle," not one

of the three words he mentions. The word was adopted, I presume, in its ordinary usage. So understood, miracles, whether regarded as "powers," "wonders," or "signs," are a necessary adjunct to revelation, and in treating them in that way I believe I got down to the first principles of the matter. It is often desirable to define the meanings that are to be attached to the principal terms to be used. I certainly do not regard miracles as "necessarily breaches of all natural laws." If Major Withers will read the essay again he will see that I devoted a whole paragraph to this point.

I cannot follow Dr. Bancroft Anderson's reasoning in reference to the Apostle's statements in Romans i, 19, 20. That "the heavens declare the glory of God" is unquestionably true, and the wisest of mankind have accepted their declaration, and have recognised their evidence to God's eternal power and divinity. The evidence of the heavens, however, gave no guarantee to Israel that when Moses told them of God's purpose to deliver them from their bondage in Egypt he was speaking as one who had been sent by the God of their fathers. The miracles, or signs, he performed did give that guarantee, and were, therefore, a "necessary adjunct" to the revelation made through him.

I need not follow Mr. Collett in his remarks, they have to do with a detail of my paper, not with the main theme. The quotation from the Sermon on the Mount can be omitted without interfering with the argument; it was only given because it expressed in a simple way the contrast between the Old and the New; the "but" of the passage clearly implies such a contrast.

Reference has been made to the Virgin Birth and the Resurrection of Christ. I can leave them where the latter is described by Mr. Lundy as the "Miracle of miracles which bears all other miracles of the Holy Scripture upon its shoulders."

I thank all who have taken part in the discussion, and will conclude by repeating the words of Jesus in reference to his "works"—"If I had not done among them the works which none other did, they had not had sin, but now have they both seen and hated both Me and My Father." Such a saying clearly shows in what way miracles, or "powers, wonders, or signs" are a necessary adjunct to revelation.



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- The Supremacy of Christianity. By the Right Rev. Bishop J. E. C. WELLDON, D.D., Dean of Manchester. (*Summary*.)

VOL. XLVII.

- Annual Address. The Unity of Genesis. By Professor H. EDOUARD NAVILLE, D.C.L., LL.D.
- The Principles of World Empire. By E. WALTER MAUNDER, F.R.A.S.
- The Life and Work of Homer. By Professor D. S. MARGOLIOUTH, D.Litt., Laudian Professor of Arabic.
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- Traces of a Religious Belief of Primeval Man. By the Rev. D. GATH WHITLEY.
- The Spectra of Stars and Nebulae. By Professor A. FOWLER, F.R.S. (*Abstract*.)
- The Determination of Easter Day. By Dr. A. M. W. DOWNING, M.A., F.R.S.
- Astronomical Allusions in Sacred Books of the East. By Mrs. WALTER MAUNDER.
- The Zoroastrian Conception of a Future Life. By Professor J. HOPE MOULTON, M.A., D.Litt.
- Mahāyāna Buddhism and Christianity. By the Rev. W. ST. CLAIR TISDALL, M.A., D.D.
- Weights and Measures of the Hebrews. By Professor ARCHIBALD R. S. KENNEDY, M.A., D.D.
- The Old and New Versions of the Babylonian Creation and Flood Stories. By T. G. PINCHES, Esq., LL.D., M.R.A.S.

VOL. XLVIII.

- Annual Address. The Influence of the War on Religious Life in Great Britain. By the Rt. Rev. BISHOP J. E. C. WELLDON, D.D., Dean of Manchester.
- The Spectra of Stars and Nebulae. By Professor A. FOWLER, F.R.S. (*Full Report*.)
- The Movements of the Stars. By Professor A. S. EDDINGTON, M.A., F.R.S., Plumian Professor of Astronomy in the University of Cambridge.
- The Principles governing Bible Translation. By E. J. SEWELL, Esq.

- The Unity of Isaiah. By the Rev. Chancellor LIAS, M.A.
 The Fulfilment of Prophecy. By the Rev. A. H. T. CLARKE, M.A. (*Abstract.*)
 The Psychology of St. Paul. By the Rev. H. J. R. MARSTON, M.A.
 Inscriptions and Drawings from Roman Catacombs. By the Rev. Prebendary H. E. FOX, M.A.
 The Influence of German Philosophy in bringing about the Great War. By Professor D. S. MARGOLIOUTH, D.Litt., Laudian Professor of Arabic in the University of Oxford.
 The Connection between the Vulgate Version of the Bible and the Theology of the Western Church. By the Rev. H. J. WHITE, M.A., Professor of New Testament Exegesis, King's College, London.
 Thanksgiving Service, May 24th, 1916.
 Commemoration Meeting, May 24th, 1916, in celebration of the Fiftieth Anniversary of the First General Meeting.
 The Tidal Wave on the Off Side of the Earth from the Moon. By Professor EDWARD HULL, M.A., LL.D., F.R.S.

VOL. XLIX.

- Annual Address. The Distances of the Stars. By Sir FRANK W. DYSON, M.A., F.R.S., Astronomer Royal.
 The Influence of Christianity upon Other Religious Systems. By the Rev. W. ST. CLAIR TISDALL, M.A., D.D. (Fourth Gunning Prize Essay.)
 Christian Mysticism. By the Very Rev. W. R. INOE, M.A., D.D., Dean of St. Paul's.
 Islam and Animism. By the Rev. S. M. ZWEMER, M.A., D.D.
 From World Dominion to Subjection: the Story of the Fall of Babylon. By T. G. PINCHES, LL.D., M.R.A.S., Lecturer in Assyrian at University College, London.
 The Conscience. By CLEMENT C. J. WEBB, M.A., Fellow of Magdalen College, Oxford.
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 The Witness of Philology to the Truth of the Old Testament. By the Rev. J. IVERACH MUNRO, M.A.
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 The Emphasis of St. Luke. By Lieut.-Colonel G. MACKINLAY.
 The Relations between Science and Religion as Affected by the Work of the Last Fifty Years. By the Very Rev. H. WACE, D.D., Dean of Canterbury.

VOL. L.

- Annual Address. The Future of Education. By Professor D. S. MARGOLIOUTH, M.A., D.Litt., F.B.A.
 Prehistoric Man; His Antiquity and Characteristics. By WILLIAM DALE, Esq., F.S.A., F.G.S.
 The Mosaic Origin of the Pentateuch. By the Rev. A. H. FINN.
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 Terrestrial Magnetism. By SYDNEY CHAPMAN, Esq., M.A., D.Sc.
 Germanism. By the Rev. Chancellor LIAS, M.A.
 The Church and the Army. By the Rev. Canon JAMES O. HANNAY, M.A.

VOL. LI.

- Annual Address. The Literary Marvels of St. Luke. By Lieut.-Colonel G. MACKINLAY.
- Christian Sanity. By ALFRED T. SCHOFIELD, Esq., M.D.
- The Influence of Christianity on the Position of Women. By Miss C. L. MAYNARD, First Principal of Westfield College, University of London.
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- The One in The Many, and The Many in the One. By Professor H. LANGHORNE ORCHARD, M.A., B.Sc.
- The Mosaic Calendar, as a means of dating approximately certain Ancient Writings. By E. WALTER MAUNDER, Esq., F.R.A.S.

VOL. LII.

- Annual Address. Freedom and Discipline. By the Very Rev. W. R. INGE, D.D., Dean of St. Paul's.
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VOL. LIII.

- Annual Address. The Old Testament and the Present State of Criticism. By the Very Rev. HENRY WACE, D.D., Dean of Canterbury.
- Human Psychology—Experimentally Considered. By DAVID ANDERSON-BERRY, Esq., M.D., LL.D.
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 Rev. W. ST. CLAIR TISDALL, D.D.
 The Roman Wall in North Britain. By the Rev. Prebendary H. E. FOX, M.A.

VOL. LIV.

- Annual Address. Modernism. By the Rt. Rev. Bishop J. E. C. WELLDON,
 D.D., Dean of Durham.
 Darius the Median and the Cyropædia of Xenophon in the Light of the Cuneiform
 Inscriptions. By the Rev. ANDREW CRAIG ROBINSON, M.A.
 The Bible in the Twentieth Century. By Miss C. L. MAYNARD, First Principal
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 The Invisible is the Real, the Visible is only its Shadow. By SYDNEY T.
 KLEIN, Esq., F.L.S., M.R.I.
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 Discussion on Sunday Observance.
 Seven Decisive and Suggestive Scenes in the History of the Secular Contest
 between Conscience and Power. By THEODORE ROBERTS, Esq.
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 Rev. E. L. LANGSTON, M.A.
 The Readers for whom Matthew wrote his Hebrew Gospel. By the Rev.
 J. E. H. THOMSON, M.A., D.D.
 The Witness of Archæology to the Bible. By Miss A. M. HODGKIN

VOL. LV.

- Annual Address. The Two Sources of Knowledge, Science and Revelation.
 By E. WALTER MAUNDER, Esq., F.R.A.S.
 Romance and Mysticism. By the Rev. CHARLES GARDNER, B.A.
 Is Inspiration a Quality of Holy Scripture? By the Rev. WILFRID H. ISAACS,
 M.A.
 Three Peculiarities of the Pentateuch which shows that the Higher Critical
 Theories of its late Composition cannot be reasonably held. By the
 Rev. ANDREW CRAIG ROBINSON, M.A.
 The Forces behind Spiritism. By ALFRED T. SCHOFIELD, Esq., M.D.
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 Professor A. S. GEDEN, M.A., D.D.
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 illustrations.)
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 BERRY, Esq., M.D., LL.D.
 Assyro-Babylonians and Hebrews—Likenesses and Contrasts. By Professor
 T. G. PINCHES, LL.D., M.R.A.S.
 Religious Controversy between Christians and Jews of To-day. By the
 Rev. Canon A. LUKYN-WILLIAMS, D.D.

VOL. LVI.

- Annual Address. The Philosophy of Modernism. By the Rev. CHARLES GARDNER, B.A.
- Egypt in the days of Akhenaten and Tutankhamen. By WILLIAM DALE, Esq., F.G.S., F.S.A.
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VOL. LVII.

- Annual Address. The Capture of the Unconscious. By ALFRED T. SCHOFIELD, Esq., M.D.
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- The Land of Punt and the Hamites. By Professor EDOUARD NAVILLE, D.C.L., LL.D., F.S.A.
- A Review of Philosophic Tendencies since Hegel. By Professor H. WILDON CARR, D.Litt.

VOL. LVIII.

- Annual Address. The Silence of God—How is it Explained? By Professor HOWARD A. KELLY, M.D., LL.D., and the Rev. DAVID M. M'INTYRE, D.D.
- Scientific Criticism as Applied to the Bible. By GEORGE B. MICHELL, Esq., O.B.E., Consul-General at Milan.
- Notes on the Discoveries at Ur and Tel al-Obeid, and the Worship of the Moon-God. By Professor THEOPHILUS G. PINCHES, LL.D., M.R.A.S.

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- A Philosophic Exponent of Latin Culture: Alexandre Vinet, Protestant Divine and Literary Critic (1797-1847). By Professor F. F. ROGET, of Geneva.
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- Evolution. By Major LEWIS M. DAVIES, R.A., F.G.S.

VOL. LIX.

- Annual Address. Time and Eternity. By ALFRED T. SCHOFIELD, Esq., M.D.
- Evolution and Revelation. By Professor J. A. FLEMING, D.Sc., F.R.S. (President).
- Man and his God—The Origin of Religion among Primitive Peoples. By Captain T. W. E. HIGGINS.
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- The Identification of the Pharaohs of the Pentateuch. By the Rev. G. A. FRANK KNIGHT, M.A., D.D., F.R.S.E.
- Babylon in the Days of Hammurapi and Nebuchadrezzar. By Squadron-Leader P. J. WISEMAN, R.A.F.
- The Completed Legend of Bel-Merodach and the Dragon. By Professor THEOPHILUS G. PINCHES, LL.D., M.R.A.S.
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- The Place of Woman in Islam. By the Rev. SAMUEL M. ZWEMER, D.D.
- Ancient Sodom in the Light of Modern Science. By the Rev. President M. G. KYLE, D.D., LL.D., Xenia Theological Seminary, U.S.A.
- A Restatement of the Argument for Theism from Design. By Lieut.-Colonel F. A. MOLONY, O.B.E.
- The Radical Criticism of the Psalter. By Professor R. DICK WILSON, D.D., Princeton Theological Seminary, U.S.A.

VOL. LX.

- Annual Address. Relativity and Reality. By Dr. J. A. FLEMING, F.R.S. (President).
- Number in Nature and in the Biblical Literature indicating a Common Origin in a Supreme Intelligence. By Dr. J. A. FLEMING, F.R.S.
- Christ and the Scriptures—What may we gather from His Attitude and Instruction, etc.? By the Rev. PARKE P. FLOURNOY, D.D., Litt.D. (being the Gunning Prize Essay for 1927).
- The New Testament Era in the Sequence of Prophecy. By W. BELL DAWSON, Esq., M.A., D.Sc., M.Inst.C.E.
- The Miraculous in Holy Scripture. By the Rev. A. H. FINN.
- The Influence of the Mythology and Heathen Practices of the Canaanites upon the Hebrews. By Professor THEOPHILUS G. PINCHES, LL.D., M.R.A.S.
- The Doctrine of Forgiveness through the Cross of Christ. By the Rev. Canon B. K. CUNNINGHAM, O.B.E., M.A.
- Science in the Book of Ecclesiastes. By AVARX H. FORBES, Esq., M.A.

- Sennacherib's Invasion of Judah, 701 B.C. By the Rev. CHARLES BOUTFLOWER, M.A.
 Protestantism and Rationalism in France. By Pastor R. SAILLENS, D.D.

VOL. LXI.

- Annual Address. Nature and the Supernatural. By Sir AMBROSE FLEMING, D.Sc., F.R.S. (President).
 Matter, Energy, Radiation, Life, and Mind. By Sir AMBROSE FLEMING, D.Sc., F.R.S.
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 Scientific Proofs of a Universal Deluge. By PHILIP J. LE RICHE, Esq., M.R.C.S., L.R.C.P.
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 The Philosophic Basis of Modernism. By Lieut.-Col. LEWIS MERSON DAVIES, R.A., F.G.S.
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VOL. LXII.

- Annual Address. Creation and Modern Cosmogony. By Sir AMBROSE FLEMING, D.Sc., F.R.S. (President).
 The Garden Tomb at Jerusalem: A Possible Site of the Resurrection. By Sir AMBROSE FLEMING, D.Sc., F.R.S.
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 Scientific Discoveries and their Bearing on the Biblical Account of the Noachian Deluge. By Lieut.-Col. L. M. DAVIES, R.A., F.G.S. (Being the Langhorne Orchard Prize Essay, 1929.)
 Arabs and Jews in Palestine. By the Rev. W. M. CHRISTIE, D.D.
 The Date of Ecclesiasticus. By Brig.-General H. BIDDULPH, C.B., C.M.G., D.S.O.
 The Significance of the Old Testament Scriptures to Our Lord Jesus Christ. By Lieut.-Colonel T. C. SKINNER, F.R.Met.Soc.
 How far do the Apologetics of Bacon, Butler and Paley hold good for Present Use? By the Rev. CHARLES GARDNER, M.A.
 The Last Days of Our Lord's Ministry. By Lieut.-Colonel A. H. C. KENNEY-HERBERT.
 The Concept of Evolution in the New Psychology. By the Rev. HAROLD C. MORTON, B.A., Ph.D.
 Joshua and the Higher Critics. By Prof. J. GARSTANG, D.Sc., F.S.A.
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VOL. LXIII.

- Annual Address. Light. By Sir AMBROSE FLEMING, D.Sc., F.R.S. (President).
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 History of Practical Astronomy. By Colonel F. C. MOLESWORTH, late R.E., F.R.A.S.
 The Jewish Apocalyptic in Relation to the New Testament. By the Rev. DAVID M. McINTYRE, D.D.
 Types in Scripture. By the Rev. A. H. FINN.
 Climatic Changes since the Ice Age. By C. E. P. BROOKS, Esq., D.Sc., Hon. Sec. R.Met.Soc.

VOL. LXIV.

- Annual Address. Some Recent Scientific Discoveries and Theories. By Sir AMBROSE FLEMING, D.Sc., F.R.S. (President).
 The Chronology of the Kings of Israel and Judah. By Lieut.-Col. A. G. SHORTT.
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 The Nestorian Mission to China. By Brig.-General H. BIDDULPH, C.B., C.M.G., D.S.O.
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 The Changing Attitude of the Modern Jew to Jesus Christ. By the Rev. Dr. PAUL P. LEVERTOFF.
 The Sumerian Poem of the Golden Age or Epic of Paradise. By Professor THEOPHILUS G. PINCHES, LL.D., M.R.A.S.
 The Magi: Their Nationality and Object. By Lieut.-Colonel F. A. MOLONY, O.B.E.
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VOL. LXV.

- Annual Address. Free Will versus Determinism. By Sir AMBROSE FLEMING, M.A., D.Sc., F.R.S. (President).
 On Beauty in Nature as a supplement to the Argument from Design. By Sir AMBROSE FLEMING, D.Sc., F.R.S. (President).
 The Age of the Earth as Deduced from the Salinity of the Ocean. By DOUGLAS J. WHITNEY, Esq., B.S.

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 Jerusalem according to Nehemiah. By Mrs. C. AGNES BOYD (with Map).
 Jewish Mysticism. By the Rev. PAUL P. LEVERTOFF, D.D.
 Psychology and the Problem of Inadequacy. By Dr. J. BURNETT, RAE.
 (Being the Dr. A. T. Schofield Memorial Paper, 1933.)
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 Sunlight and Life. By Dr. C. W. SALEEBY, F.R.S. Edin.
 The Supposed Evolutionary Origin of the Moral Imperative. By the Rev. H. C. MORTON, B.A., Ph.D.
 Recent Developments in the Textual Criticism of the Bible (including the recently discovered Papyri). By Sir FREDERIC G. KENYON, K.C.B., D.Litt., LL.D.
 The Doctrine of Organic Evolution in the Light of Modern Research. By Professor Dr. ALBERT FLEISCHMANN, Professor of Biology, University of Erlangen.

VOL. LXVI.

- Annual Address. On Truth. By Sir AMBROSE FLEMING, M.A., D.Sc., F.R.S. (President).
 Bird Flight and its Bearing on the Theory of Evolution. By Capt. B. ACWORTH, D.S.O., R.N.
 Jesus of Nazareth—The Prophet Like Unto Moses. By the Rev. F. W. PITT.
 The Christian Faith the Final Criterion of Philosophy. By THOMAS FITZGERALD, Esq. (Being the Langhorne-Orchard Prize Essay, 1933.)
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 Early Hindu Astronomy. By Mrs. WALTER MAUNDER, F.R.A.S.
 New Bible Evidence. By Sir CHARLES MARSTON, F.S.A.
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 The Dates of Our Lord's Life and Ministry. By the Rev. JOHN STEWART, Ph.D.

VOL. LXVII.

- Modern Anthropology *versus* Bible Statements on Human Origin. By Sir AMBROSE FLEMING, D.Sc., F.R.S. (President).
 Race Mixture with Special Reference to the History of the Jewish People. By Dr. K. B. AIKMAN.
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 Solar and Lunar Cycles Implied in the Prophetic Numbers of the Book of Daniel. By Dr. W. BELL DAWSON, D.Sc., M.Inst.C.E.
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VOL. LXVIII.

- The Times of the Gentiles. By Rev. F. W. PITT.
- The Noachian Deluge and its Probable Connection with Lake Van. By Lieut.-Colonel F. A. MOLONY, O.B.E.
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VOL. LXIX.

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OBJECTS, CONSTITUTION, AND BY-LAWS
OF
The Victoria Institute,
OR
PHILOSOPHICAL SOCIETY OF GREAT BRITAIN.

Adopted at the First Annual General Meeting of the Members and Associates,
May 27th, 1867, with Revisions of 1874-75, 1910 and 1912.

§ I. *Objects.*

1. THE VICTORIA INSTITUTE, OR PHILOSOPHICAL SOCIETY OF GREAT BRITAIN, is established for the purpose of promoting the following objects, viz. :—

First. To investigate fully and impartially the most important questions of Philosophy and Science, but more especially those that bear upon the great truths revealed in Holy Scripture ; with the view of reconciling any apparent discrepancies between Christianity and Science.

Second. To associate together men of Science and authors who have already been engaged in such investigations, and all others who may be interested in them, in order to strengthen their efforts by association ; and, by bringing together the results of such labours, after full discussion, in the printed Transactions of an Institution : to give greater force and influence to proofs and arguments which might be little known, or even disregarded, if put forward merely by individuals.

Third. To consider the mutual bearings of the various scientific conclusions arrived at in the several distinct branches into which Science is now divided, in order to get rid of contradictions and conflicting hypotheses, and thus promote the real advancement of true science ; and to examine and discuss all supposed scientific results with reference to final causes, and the more comprehensive and fundamental principles of Philosophy proper, based upon faith in the existence of one Eternal God, who, in His wisdom, created all things very good.

Fourth. To publish Papers read before the Society in furtherance of the above objects, along with full reports of the discussions thereon, in the form of a Journal, or as the Transactions of the Institute.

Fifth. When subjects have been fully discussed, to make the results known by means of Lectures of a more popular kind, and to publish such Lectures.

Sixth. To publish English translations of important foreign works of real scientific and philosophical value, especially those bearing upon the relation between the Scriptures and Science ; and to co-operate with other philosophical societies at home and abroad, which are now or may hereafter be formed, in the interest of Scriptural truth and of real science, and generally in furtherance of the objects of this Society.

Seventh. To found a Library and Reading Rooms for the use of the Members and Associates of the Institute, combining the principal advantages of a Literary Club.

§ II. *Constitution.*

1. The Society shall consist of Members and Associates, who in future shall be elected as hereinafter set forth.

2. The government of the Society shall be vested in a Council whose Members shall be chosen from among the Members and Associates of the Society and be professedly Christians), consisting of a President, two or more [not exceeding seven] Vice-Presidents, an

Honorary Treasurer, and twelve or more [not exceeding twenty-four] Ordinary Members of Council. The Trustees for the time being of the funds of the Institute shall be *ex officio* Members of the Council.

3. The President, Vice-Presidents and Honorary Officers [other than the Trustees for the time being of the funds of the Institute] shall be elected annually at the Annual General Meeting of the Institute, with power to the Council to fill up any casual vacancies.

At the Annual General Meeting in each year, one-third of the Ordinary Members of Council [or if their number be not a multiple of three then the number nearest to one-third] shall also retire, in order of seniority of election to the Council, and be eligible for re-election: as between Members of equal seniority the Members to retire shall be chosen from among them by ballot [unless such Members shall agree between themselves]. Vacancies thus created shall be filled up at the Annual General Meeting, but any casual vacancies may be filled up by the Council.

4. For the annual elections taking place under Rule 3, nominations may be made by Members of the Institute and sent to the Secretary not later than December 1st in any year. The Council may also nominate for vacancies, and all nominations shall be submitted to the Members and Associates at the time when notice of the Annual General Meeting is posted.

If more nominations are made than there are vacancies on the Council the election shall be by ballot.

5. Any person desirous of becoming a Member or Associate shall send to the Secretary an application for admission, which shall be signed by one Member or Associate recommending the Candidate for Admission.

6. Upon such application being transmitted to the Secretary, the candidate may be elected by the Council, and enrolled as a Member or Associate of the Victoria Institute, in such a manner as the Council may deem proper.

7. Application for admission to join the Institute being made as before laid down, such application shall be considered as *ipso facto*

pledging all who are thereupon admitted as Members or Associates to observe the Rules and By-laws of the Society, and as indicative of their desire and intention to further its objects and interests ; and it is also to be understood that only such as are professedly Christians are entitled to become Members.

8. Each Member shall pay an Entrance Fee of One Guinea, which the Council may from time to time suspend, and an Annual Contribution of Two Guineas. A Donation of Twenty Guineas shall constitute the donor a Life Member.

9. Each Associate shall pay an Annual Contribution of One Guinea. A Donation of Ten Guineas shall constitute the donor a Life Associate.

10. The Annual Contributions shall be considered as due in advance on the 1st day of January in each year, or, by resolution of the Council, on the anniversary of election, and shall be paid within three months after that date ; or, in the case of new admissions, within three months after election.

11. Any Member or Associate who contributes a donation in one sum of not less than Sixty Guineas to the funds of the Institute shall be enrolled as a Vice-Patron thereof, and will thus also become a Life Member or Life Associate, as the case may be.

12. Should any member of the Royal Family hereafter become the Patron, or a Vice-Patron, or Member of the Institute, the connexion shall be regarded as purely Honorary ; and none of the Rules and By-laws relating to donations, annual contributions or obligations to serve in any office of the Society, shall be considered as applicable to such personages of Royal Blood.

13. Any Member or Associate may withdraw from the Society at any time, by signifying a desire to do so by letter, addressed to the Secretary ; but such shall be liable for the contribution of the current year, and shall continue liable for the annual contribution, until all sums due to the Society from such Member or Associate shall have been paid, and all books or other property borrowed from the Society shall have been returned or replaced.

14. Should there appear cause, in the opinion of the Council, for the exclusion from the Society of any Member or Associate, a private intimation may be made by direction of the Council, in order to give such Member or Associate an opportunity of withdrawing from the Society ; but, if deemed necessary by the Council, a Special General Meeting of Members shall be called for the purpose of considering the propriety of expelling any such person : whereat, if eleven or more Members shall ballot, and a majority of those balloting shall vote that such person be expelled, he shall be expelled accordingly. One month's notice, at least, shall be given to the Members of any such Special General Meeting.

15. Non-resident Members and Associates, or others desirous of promoting the objects and interests of the Institute, may be elected by the Council to act as corresponding Members abroad, or as Honorary Local Secretaries, if within the United Kingdom, under such arrangements as the Council may deem advisable.

16. The whole property and effects of the Society shall be vested in two or more Trustees, who shall be chosen at a General Meeting of the Society. The Trustees are empowered to invest such sums as the Council may, from time to time, place in their hands, in, or upon any of the Stocks, Funds, or Securities, for the time being, authorized by statute for the investment of trust funds by trustees, and shall have the usual powers of trustees in regard thereto. [The President, the Hon. Treasurer, and the Secretary may officially give effect to such resolutions as a General Meeting may pass in regard thereto.]

17. All moneys received on account of the Institute shall be duly paid to its credit at the Bankers, and all cheques shall be drawn, under authority of the Council, and shall be signed by any two of the following, the Chairman of Council, the Honorary Treasurer and the Secretary

18. The accounts shall be audited annually, by a Committee, consisting of two Members or Associates—one of whom may be on the Council—to be elected at an Ordinary Meeting of the Society preceding the Anniversary Meeting. This Committee shall make a written Report to the Council at the first Meeting after such audit,

and also to the Institute, upon the day of the Annual General Meeting—stating the balance in the Treasurer's hands and the general state of the funds of the Institute.

§ III. *By-laws* (Privileges).

1. A Member or Associate, when elected, shall be so informed by the Secretary in a printed copy of the letters, Form B, in the Appendix.

2. Members and Associates shall not be entitled to any privileges, or have the right to be present, or to vote at any of the Meetings of the Society, till they have paid the contributions due by them.

3. Annual subscriptions shall be considered as in arrear, if not paid within three months after they become due.

4. Should any annual subscription remain in arrear for six months the Secretary shall forward to the Member or Associate from whom the subscription is due, a letter, Form D, unless such Member or Associate reside out of the United Kingdom, in which case the Form D shall not be sent unless the subscription continues unpaid for twelve months.

5. If any arrears be not paid within twelve months, the Council shall use their discretion in erasing the name of the defaulter from the list of Members or Associates.

6. Members shall be entitled to introduce two Visitors at the Ordinary Meetings of the Society; and to have sent to them a copy of all the Papers read before the Society, which may be printed in its Transactions or otherwise, and of all other official documents which the Council may cause to be printed for the Society; they will also be entitled to a copy of all such translations of foreign works or other books which are published under the auspices of the Society in furtherance of the Sixth Object (§ I).

7. Associates may introduce two Visitors at the Ordinary Meetings, and shall be entitled to all the minor publications of the

Society, and to a copy of its Transactions during the period of their being Associates, but not to the translations of foreign works or other books above referred to.* It shall, however, be competent to the Council of the Society, when its funds will admit of it, to issue the other publications of the Society to Associates, being ministers of religion, either gratuitously or at as small a charge as the Council may deem proper.

8. When it shall be found necessary to send the letter, Form D, to any Member or Associate who may be in arrear, the printed papers and other publications of the Society shall cease to be sent to such Member or Associate till the arrears are paid, and, until then, he shall not be allowed to attend any Meeting of the Society, nor have access to any public rooms which may be in its occupation.

9. The Library shall be under the management and direction of the Council, who are empowered to designate such works as shall not be allowed to circulate.

10. Members may borrow books from the Library, and have not more than three volumes in their possession at the same time: pamphlets and periodical publications are not to be kept above fourteen days, nor any other book above three weeks. Associates may see books in the Library during office hours.

11. Members who may borrow books from the Library shall be answerable for the full value of any work that is lost or injured.

12. Periodical publications shall remain on the table for a month, other books for a fortnight, after they are received.

13. When a book or pamphlet is wanted, and has been the stipulated time in the possession of any Member, the Secretary shall request its return, and a fine of threepence a day shall be incurred for every day it may be detained, which fine shall commence on the

* These, as well as the Transactions issued in the years previous to their joining, may be purchased at such prices as the Council may determine.

third day after the transmission of the notice in the case of town Members, and after the sixth day in the case of country Members ; and until the return of such works, and the discharge of all fines incurred, no further issue of books shall be permitted to the Member applied to.

14. The books shall be ordered in for inspection at such times as the Council shall appoint, and a fine of half-a-crown shall be incurred for neglecting to send in books by the time required in the notice.

15. A book shall lie on the Library table in which Members may insert, for the consideration of the Council, the titles of such works as they desire to be purchased for the Institute.

§ IV. *By-laws* (General and Ordinary Meetings).

1. A General Meeting of Members and Associates shall be held annually on 24th May (being Her late Majesty's birthday, and the Society's anniversary), or on the Monday following, or on such other day as the Council may determine as most convenient, to receive the Report of the Council on the state of the Society, and to deliberate thereon ; to discuss and determine such matters as may be brought forward relative to the affairs of the Society ; and to elect Members of Council and Officers for the ensuing year.

2. The Council shall call a Special General Meeting of the Members and Associates, when it seems to them necessary, or when required to do so by requisition, signed by not less than ten Members and Associates, specifying the question intended to be submitted to such Meeting. Two weeks' notice must be given of any such Special General Meeting, and only the subjects of which notice has been given shall be discussed thereat. No alteration in, or addition to, the existing rules shall be made except at such Special General Meeting.

3. The Ordinary Meetings of the Society shall usually be held on the first and third Monday afternoons or evenings in each month, from January to June inclusive, and in December : or on such other afternoons or evenings as the Council may determine to be convenient : and a printed card of the Meetings for each Session shall be forwarded to each Member and Associate.

4. At the Ordinary Meetings the order of proceeding shall be as follows : The President, or one of the Vice-Presidents, or a Member of the Council or someone specially invited by the Council shall take the chair at the time fixed for the commencement of the Meeting ; the minutes of the last Ordinary Meeting shall be read by the Secretary and, if found correct, shall be signed by the Chairman ; the names of new Members and Associates shall be read ; the presents made to the Society since their last Meeting shall be announced ; and any other communications which the Council think desirable shall be made to the Meeting. After which, the Paper or Papers intended for discussion shall be announced and read, and the persons present shall be invited by the Chairman to make any observations thereon which they may wish to offer.

The claims of Members and Associates to take part in a discussion are prior to those of Visitors. The latter, when desiring to speak upon any Paper, must first send their cards to the Chairman and ask permission (unless they have been specially invited by the Council to attend, and join in considering the subject before the Meeting, or are called upon by the Chairman).

5. The Papers read before the Society, and the discussions thereon fully reported, shall be printed by order of the Council ; or, if not, the Council shall, if they see fit, state the grounds upon which this Rule has been departed from, in the printed Journal or Transactions of the Society.

6. The Council may at their discretion authorize Papers of a general kind to be read at any of the Ordinary Meetings, either as introductory lectures upon subjects proper to be afterwards discussed, or as the results of discussions which have taken place, in furtherance of the Fifth Object (§ I).

7. The Council may, at its discretion, request any Lecturer or Author of a Paper to be read at any Meeting, previously to submit an outline of the proposed method of treating his subject.

8. At the Ordinary Meetings no question relating to the Rules or General Management of the affairs of the Society shall be introduced, discussed or determined.

§ V. *By-laws* (Council Meetings).

1. The Council shall meet at least once every month from October to June inclusive, or at any other time and on such days as they may deem expedient. The President, or any three Members of the Council, may at any time call a Special Meeting, to which the whole Council shall be summoned.

2. At Council Meetings three shall be a quorum, the decision of the majority shall be considered as the decision of the Meeting, and the Chairman shall have a casting vote.

3. Minutes of the Proceedings shall be taken by the Secretary, or, in case of his absence, by some Member present, whom the Chairman may appoint; which Minutes shall afterwards be entered in a minute-book kept for that purpose, and read at the next Meeting of the Council, when, if found correct, they shall be signed by the Chairman.

§ VI. *By-laws* (Papers).

1. Papers presented to be read before the Society shall, when read, be considered as the property of the Society, unless there shall have been any previous engagement with its author to the contrary; and the Council may cause the same to be published in any way and at any time they may think proper after having been read. If a Paper be not read, it shall be returned to the author; and, if a Paper be not published within a reasonable time after having been read, the author shall be entitled himself to publish it, and he may borrow it for that purpose.

2. When a Paper is sent to the Society for the purpose of being read, it shall be laid before the Council, who may refer it to two of that body, or of the other Members or Associates of the Society whom they may select, for their opinions as to the character of the Paper and its fitness or otherwise for being read before the Society, which they shall state as briefly as may be, in writing, along with the grounds of their respective opinions. Should one of such opinions be adverse to the Paper and against its being read before the Society,

then it shall be referred to some other referee, who is unaware of the opinion already pronounced upon the Paper, in order that he may state his opinion upon it in like manner. Should this opinion be adverse to the Paper, the Council shall then consult and decide whether the Paper shall be rejected or read; and, if rejected, the Paper shall be returned to the author with an intimation of the purport of the adverse opinions which have been given with respect to it; but the names of the referees are not to be communicated to him, unless with their consent or by order of the Council. All such references and communications are to be regarded as confidential, except in so far as the Council may please to direct otherwise.

3. The Council may authorize Papers to be read without such previous reference for an opinion thereon; and when a Paper has been referred, and the opinion is in favour of its being read in whole or in part, the Council shall then cause it to be placed in the List of Papers to be so read accordingly, and the author shall receive due notice of the day fixed for its reading.

4. The authors of Papers read before the Society shall, if they desire it, be presented with twenty-five separate copies of their Paper, with the discussion thereon, or with such other number as may be determined upon by the Council.

§ VII. *By-laws* (General).

1. The government of the Society, and the management of its concerns, are entrusted to the Council, subject to no other restrictions than are herein imposed, and to no other interference than may arise from the acts of Members and Associates in General Meeting assembled.

2. With respect to the duties of the President, Vice-Presidents and other Officers and Members of Council, and any other matters not herein specially provided for, the Council may make any regulations and arrangements as they deem proper, and as shall appear to them most conducive to the good government and management of the Society, and the promotion of its objects. And the Council may hire apartments, and appoint persons, whether Members of the

Council, or Members or Associates of the Institute, or not, to be salaried officers, clerks, or servants, for carrying on the necessary business of the Society ; and may allow them respectively such salaries, gratuities, and privileges, as to them, the Council, may seem proper ; and they may suspend any such officer, clerk or servant from his office and duties, whenever there shall seem to them occasion ; provided always, that every such appointment or suspension shall be reported by the Council to the next ensuing General Meeting of the Members and Associates to be then confirmed or otherwise as such Meeting may think fit.

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The Victoria Institute,

or

Philosophical Society of Great Britain,
1, CENTRAL BUILDINGS, WESTMINSTER, S.W. 1.

OBJECTS.

THE objects of this Society, founded in the year 1865, are:—

FIRST.—To investigate, in a reverent spirit, important questions of Philosophy and Science, especially those bearing upon Holy Scripture.

SECOND.—To arrange for addresses from men who have themselves contributed to progress in Science and Research, and thus to bring the Members and Associates of the Institute into direct touch with the latest advances.

THIRD.—In humble faith in one Eternal God, Who created all things good, to combat the unbelief now prevalent by directing attention to the evidences of the Divine care for man that are supplied by Science, History, and Religion.

PAPERS.

THE Papers read before and eventually published by the Society are of two kinds:—

1.—Original contributions to knowledge.

2.—Essays on important questions of Philosophy and Science.

The Volume of Transactions accordingly contains under the first head Papers that have been either supplied by experts of acknowledged authority, or have been guaranteed by such experts as suitable to the publications of a learned Society.

In publishing Papers under the second head the Society does not commit itself to the opinions expressed by the authors.

MEETINGS.

THE Meetings, of which due notice is given, are held at 1, Central Buildings, Westminster, S.W. 1, at Half-past Four o'clock in the afternoon, generally on the First and Third Mondays of the Months from December to June inclusive.

The Library, Reading and Writing Room are open, for the use of the Members, from ten till four (Saturdays till twelve).

The Secretary will be glad to meet Members or Associates at the Office by arrangement.

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193

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